

# Stormwater Capacity Analysis for Four Mile Run, City of Alexandria, Virginia

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## Contents

Contents.....	1
Executive Summary.....	1
Project Introduction.....	2
Task 2 Objectives .....	5
Description of Existing Stormwater Collection System.....	5
Public/Private and Disconnected Drainage Systems .....	6
Modeled and Analyzed System.....	6
Data Gaps.....	9
Modeling Approach .....	10
Hydrologic Modeling.....	10
Simulation of Stormwater Runoff .....	13
Hydraulic Modeling.....	13
Model Results .....	14
Hydrologic Model Results .....	14
Inlet Capacity Results.....	14
Hydraulic Model Results .....	14
Summary.....	22
References .....	22

## Attachments

- A     Methodology for Identifying Public vs. Private Structures: August 6, 2009, Meeting Summary
- B     Hydrologic Model Schematic and Parameters
- C     Inlet Capacity Results
- D     Detailed Model Results

## Executive Summary

The City of Alexandria, Virginia, has experienced repeated and increasingly frequent flooding events attributable to old infrastructure, inconsistent design criteria, and perhaps climate change. The purpose of the stormwater capacity analysis project is to provide a program for analyzing storm sewer capacity issues, identifying problem areas, developing and prioritizing solutions, and providing support for public outreach and education. The project is being implemented by watershed. The watersheds include Hooffs Run, Four Mile Run, Holmes Run, Cameron Run, Taylor Run, Strawberry Run, Potomac River, and Backlick Run.

This technical memorandum focuses on hydrologic and hydraulic analyses of Four Mile Run (FMR) watershed using XPSWMM. It summarizes the storm sewer system in the FMR watershed, the model development steps, data sources and gaps, model assumptions, and the results, focusing on the capacity deficiencies

identified in the model. These deficiencies will be used as a basis for identifying and prioritizing problem areas and solutions during the next phase of the project.

The objective of this phase of the project is to identify the deficient stormwater collection system elements in FMR watershed during a 10-year return period rainfall storm event. During the Hooffs Run watershed modeling task, three different design storm scenarios and one historic event were investigated: the City's existing intensity duration-frequency (IDF) curve, the updated curve using the full record of historical precipitation data (1949 to 2008), the curve projected for the year 2100 using various climate change scenarios, and the June 25–27, 2006 storm event. The results of the Hooffs Run analyses showed that the existing IDF design hyetograph was the most conservative of the design storms (produced the greatest amount of stormwater runoff and flooding), and produced a similar amount of the system flooding to the results from the historic event. Consequently, this scenario was chosen to be used to complete the stormwater capacity analysis for the other watersheds.

The FMR watershed within the City is composed of two hydrologically-separate areas referred hereinafter as FMR East and FMR West. FMR West has a drainage area of 1.36 square miles and FMR East has a drainage area of 1.65 square miles. FMR West which is composed of 523 and 501 modeled nodes and conduits, respectively, drains into Arlington County and then to Four Mile Run. FMR East which is composed of about 1,185 and 1,162 modeled nodes and conduits, respectively, drains directly to FMR. The ultimate discharge point of FMR West into Four Mile Run is upstream of the FMR East discharge location. The hydraulic model predicts that a large portion of FMR East is experiencing capacity deficiencies, especially in the southeast area. In contrast, FMR West shows only isolated problem areas, unlike the systemic deficiencies identified in FMR East.

The model results show that 24 percent of the pipes flood the ground surface, 16 percent have a hydraulic grade line within 2 feet of the surface, and 14 percent surcharge above the crown of the pipe. Comparing the peak runoff to the estimated inlet capacity of each catchment indicates that 60 percent of the catchments in the model may have insufficient inlet capacity. Maps and profiles of flooding areas are presented in this technical memorandum to assist in locating problem areas and understanding the capacity deficiencies of the drainage system.

The hydraulic modeling results presented in this memorandum should be reviewed with the understanding that several assumptions were made to fill data gaps, primarily assumptions of inverts in pipes with diameters less than 24 inches.

## Project Introduction

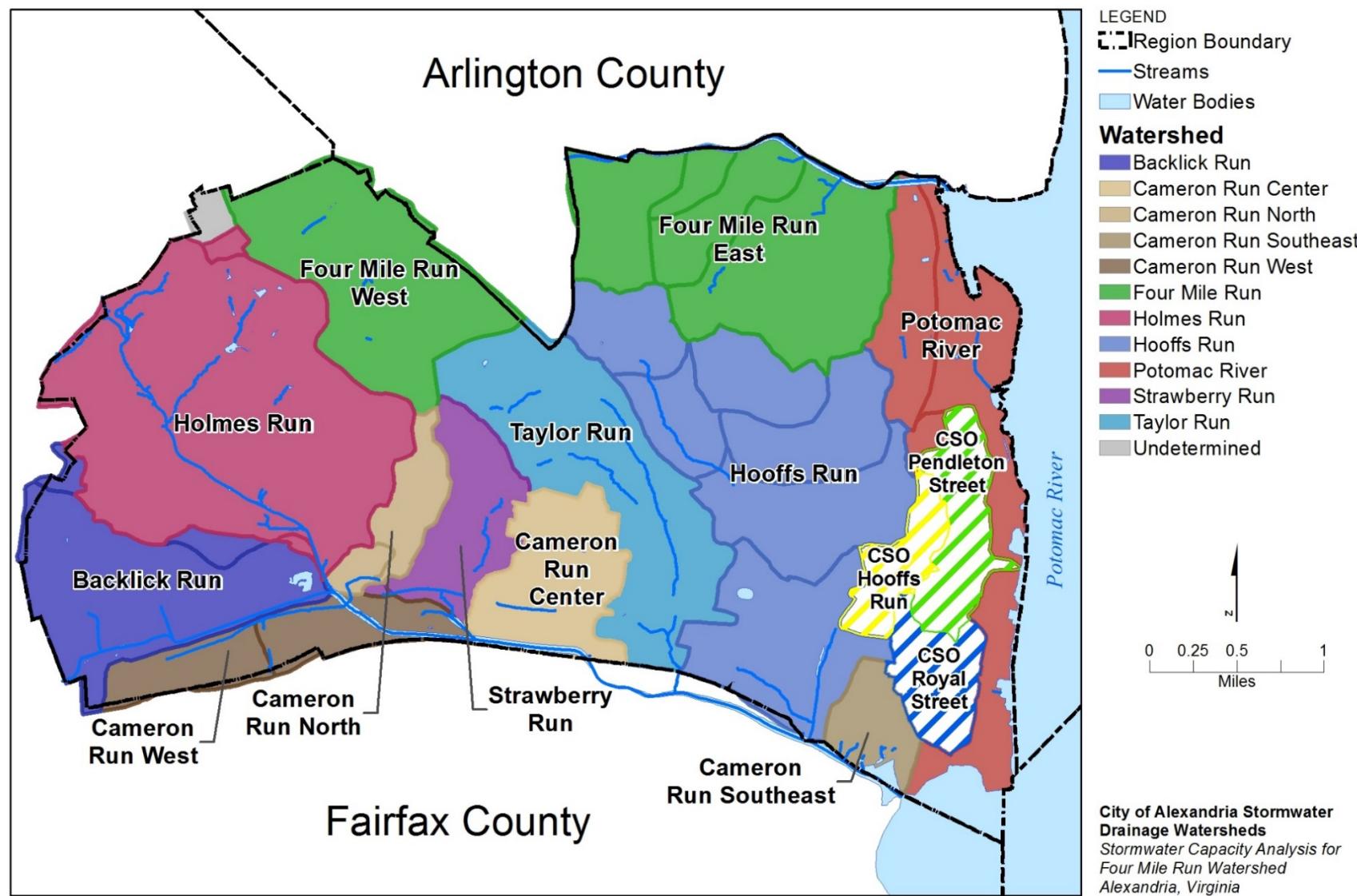
The City of Alexandria, Virginia, (City) has experienced repeated and increasingly frequent flooding events attributable to old infrastructure, inconsistent design criteria, and perhaps climate change. The purpose of this project is to provide a program for analyzing storm sewer capacity issues, identifying problem areas, developing and prioritizing solutions, and providing support for public outreach and education. The project is being implemented by watershed. The watersheds include Hooffs Run, Four Mile Run, Holmes Run, Cameron Run, Taylor Run, Strawberry Run, Potomac River, and Backlick Run.

The purpose of this task is to conduct stormwater capacity analysis for the City's existing stormwater collection system, located in the Four Mile Run (FMR) sewershed. Figure 1 presents the various drainage sewersheds for the City of Alexandria.

This technical memorandum describes the methodology and results of the stormwater capacity analysis for the stormwater collection system in the FMR watershed identified in Figure 1. Subsequent memorandums will describe the results for remaining watersheds in the City.

FIGURE 1

Stormwater Drainage Watersheds, City of Alexandria, Virginia  
*City of Alexandria Storm Sewer Capacity Analysis – Four Mile Run*





## Task 2 Objectives

The objective of this phase of the study was to identify the deficient stormwater collection system elements during a 10-year return period rainfall storm event.

The stormwater collection system elements include the following:

- Closed conduits, such as gravity mains (storm drains) and culverts
- Open channels, such as streams and trapezoidal channels that connect two pipe systems
- Drainage inlets and junctions, such as roadside curb inlets, manholes, catch basins, ponds
- Flow regulating structures, such as weirs, orifices, and tide gates

## Description of Existing Stormwater Collection System

The City maintains a geodatabase of all stormwater collection system elements, including conduits and drainage junction points. A checked-out copy of the FMR geodatabase received from the City on 12/22/11 was used as the basis of the stormwater collection system model. The geodatabase was thoroughly reviewed and updated with new survey data for conduits 24 inches and larger collected during a Field Survey and Condition Assessment task. In some locations for which survey data were not available, the City's plan and as-built drawings were used to improve data quality and rectify system connectivity. The updated geodatabase was submitted to the City for incorporation (i.e., checked-in) into the City-wide stormwater collection system geodatabase. The updated stormwater collection system in the FMR watershed contains the following elements:

- 242,438 linear feet of gravity mains (storm drains) represented by 3,454 pipes. Pipe diameter/width varies from 6 to 113 inches for circular, rectangular, elliptical, and arch pipes.
- 3,906 drainage junction points:
  - 236 catch basins
  - 18 culvert points
  - 2,219 drainage inlets
  - 919 manholes
  - 394 nodes (blind connections)
  - 110 pipe inlet/outlets
  - 7 control devices
  - 3 storage basins (stormwater ponds)

In addition to the structures represented in the stormwater collection system geodatabase, a network of natural streams and open channels convey storm flows in the City's drainage network. The FMR watershed includes a few unnamed tributaries to FMR and several small open channels. These streams are represented separately in the City's geodatabase in a stream feature class.

The FMR watershed is subdivided into 725 catchments for modeling. Arlington County divides the FMR watershed into two hydrologically-separate areas referred hereinafter as FMR East and FMR West. FMR West has a drainage area of 1.36 square miles and FMR East has a drainage area of 1.65 square miles. FMR West drains into Arlington County and then to FMR, while FMR East drains directly to FMR. It should also be noted that there is a portion of FMR West that flows into Fairfax County from Dawes Avenue, runs parallel to the county boundary and then flows back into Alexandria.

The 58 catchments in the northwest portion of the west system were analyzed in a pilot study which is referred to as the "Four Mile Run Priority Area." Results of the analysis of the pilot catchment were presented in *Stormwater Capacity Analysis for King Street and North Beauregard Street Intersection (Four Mile Run Priority Area), City of Alexandria, Virginia* (Michael Baker Jr., Inc., 2012). However, because of updates to the model and available data, those results are superseded by the results in this document.

Methods and results from the analysis of all 725 catchments, including the updated results for the priority area, are presented in the following sections.

## Public/Private and Disconnected Drainage Systems

The City's geodatabase includes structures that are privately owned. Since the hydraulic analyses and identification of capacity deficiencies include only the public facilities as per direction of the City, the structures located in privately owned parcels were identified and excluded from the model. The methodology that was used to accomplish this is documented in the meeting minutes presented in Attachment A.

Small disconnected drainage systems were also identified and excluded from the model. These systems consisted of only a few structures and did not connect to any larger downstream systems.

## Modeled and Analyzed System

A copy of the updated geodatabase was used as the starting point for the hydraulic model. At the direction of the City, private systems were removed from the modeled system. Despite survey and review of available drawings and documents, small isolated systems remained in the database. These systems were identified and removed from the model database due to lack of accurate information. The model does not extend beyond the storm sewer outfalls to FMR or its large tributaries, therefore, none of the FMR and its tributaries were modeled.

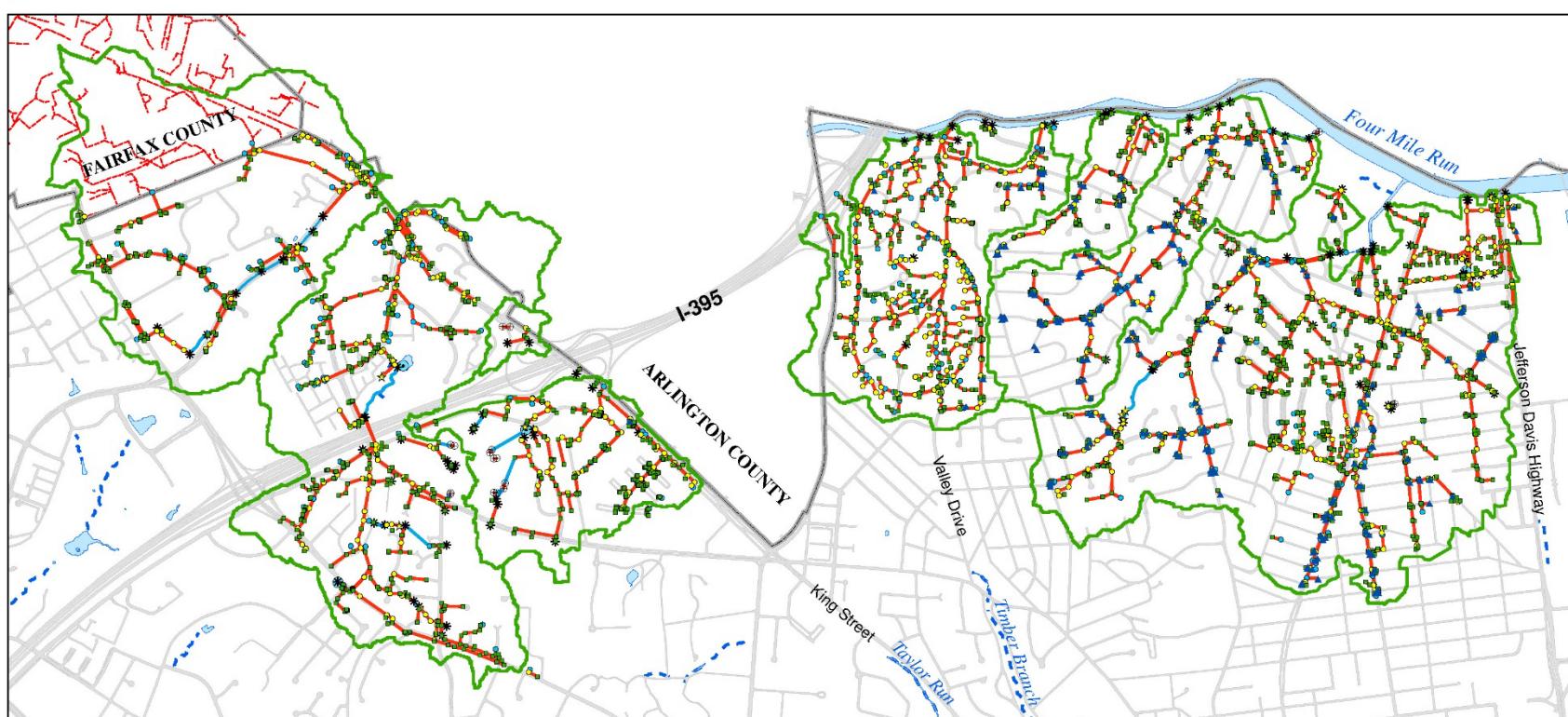
The modeled system only represents an analysis of approximately 20 percent of the inlets as per the scope of work. Since drainage areas were not computed for each inlet in the model, there were several instances where pipes did not have corresponding flows. This was the case in approximately 930 pipes with diameters of 6 to 24 inches and 17 pipes with diameters of 27 to 60 inches in the upstream-most portions of the system. These pipes that did not receive flow were effectively eliminated from the analysis. Only results pertaining to the analyzed system are included in this report.

The analyzed system includes the following elements:

- 158,756 linear feet of gravity mains (storm drains) represented by 1,663 pipes. Pipe diameter/height varies from 6 to 113 inches for circular, rectangular, elliptical, and arch pipes.
- 1,708 drainage junction points:
  - 91 catch basins
  - 12 culvert points
  - 593 drainage inlets
  - 709 manholes
  - 248 nodes (blind connections)
  - 43 pipe inlet/outlets
  - 7 control devices
  - 5 storage basins (stormwater ponds)
- 14 open channel segments

Figure 2 shows a map of the existing stormwater collection system in the FMR watershed.

**FIGURE 2**  
**Existing Stormwater Collection System**  
*City of Alexandria Storm Sewer Capacity Analysis – Four Mile Run*

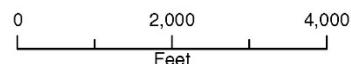


#### LEGEND

- |                  |                        |                                  |
|------------------|------------------------|----------------------------------|
| ▲ DCatchBasin    | ● DNode                | — Modeled Streams                |
| ★ DControlDevice | * DPipeO               | - - - City of Alexandria Streams |
| ⊕ DCulvertPoint  | ○ DStorageBasin        | ■ Water Bodies                   |
| ■ DInlet         | — DGravityMain         | □ Four Mile Run Subwatersheds    |
| ◆ DManhole       | — Fairfax County Pipes | ■ Roads                          |

#### FIGURE 2

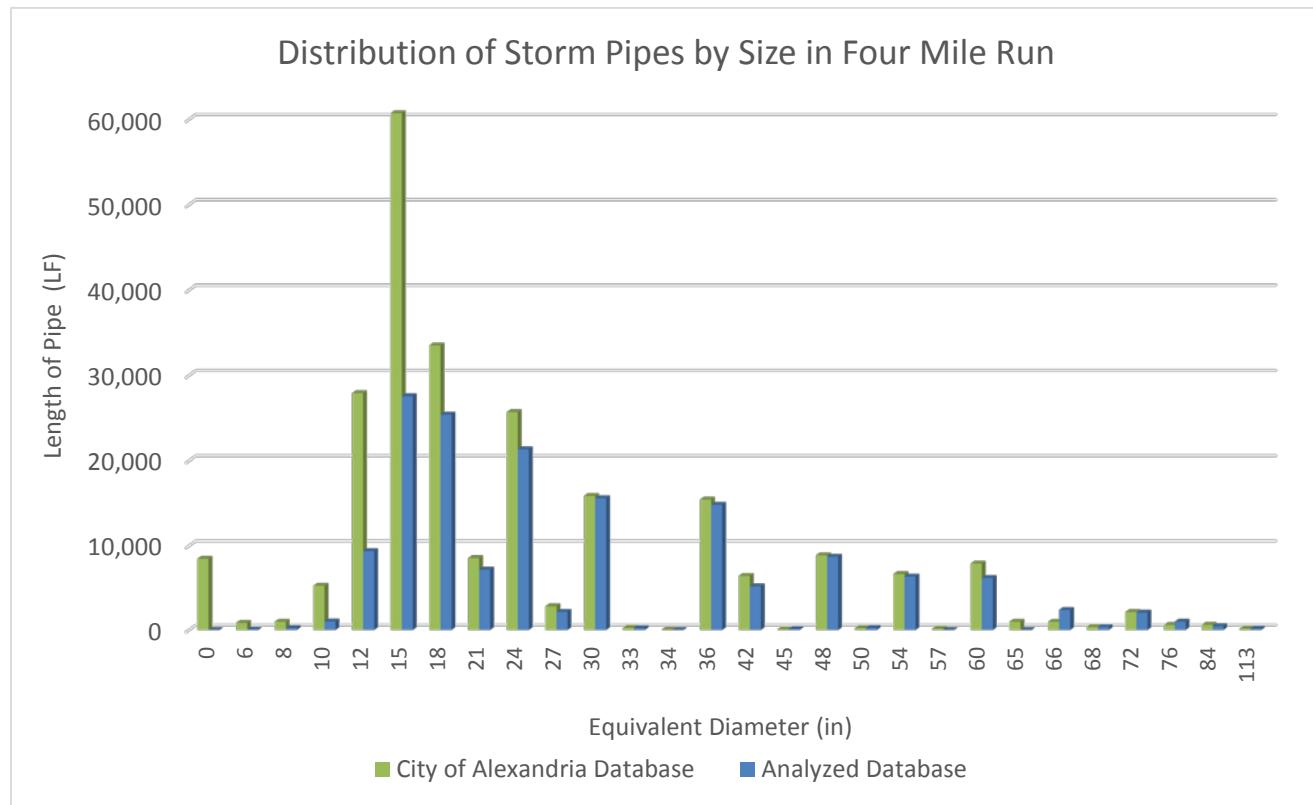
Four Mile Run Watershed Stormwater Collection System  
*Stormwater Capacity Analysis for Four Mile Run Watershed*  
*City of Alexandria, Virginia*





The distribution by size of storm drains in the City's FMR geodatabase and the storm drains analyzed in the FMR model is presented in Figure 3. The total linear footage of 66 inch pipes is greater in the analyzed database because several 66 inch pipes were added to the model to connect a retention pond and another pipe system.

**FIGURE 3**  
**Distribution of Storm Drains by Size, Four Mile Run Watershed, City of Alexandria, Virginia**  
*City of Alexandria Storm Sewer Capacity Analysis – Four Mile Run*



## Data Gaps

The available data for the storm drains in the FMR watershed were evaluated for data quality and completeness. Structures connected to pipes that were less than 24 inches were not surveyed. About 45 percent of the total linear footage of pipes in the modeled FMR watershed database, which does not include private or disconnected structures, are less than 24 inches in size (including pipes with unknown diameter). In addition, there were instances where structures could not be found, were inaccessible, or where lid covers were secured. Data was also missing in locations with blind pipe connections with no access manhole. As a result, many data gaps are needed to be filled to develop a complete model. The following approaches were adopted to fill in the missing data:

- Missing data were inferred from the available data, if applicable. For example, a missing pipe size was assumed to equal the downstream pipe diameter.
- Pipe diameters at the most-upstream inlets were assumed to be 12 inches.
- A 6-inch-depth to crown was assumed for the most upstream inlets and DNodes.
- Interior point feature invert elevations were estimated by assuming that pipe slope is constant.
- Limited data available in the GIS for ponds and the outlet control structures were supplemented with data from as-built plans.

In addition to filling in missing data, the data were reviewed for data quality and validity. Assumptions were made when the available data were not reasonable (e.g., a pipe crown was above the rim of a manhole). Additional information regarding the types of assumptions made to complete the hydraulic model are provided in the technical memorandum *Summary of Data Gaps and Assumptions in the Hooffs Run Watershed* (CH2M HILL, 2012), which was provided to the City in October 2012. The same approaches were applied to fill data gaps and resolve unreasonable data in the GIS data for the FMR watershed, except where field survey data are available.

## Modeling Approach

The FMR watershed was analyzed using commercially available and public domain computer models that are widely used and industry accepted. The public domain software, ArcHydro Tools 9.2 and HEC-GeoHMS (ArcGIS version), were used to aid delineation of catchments and to estimate hydrologic parameters, such as catchment drainage area, slope, and longest flow path. Other hydrologic parameters, such as catchment width and percent impervious, were estimated in ArcGIS after completing the catchment delineation. The private domain software xpswmm (version 2014 SP1) was used to simulate rainfall-runoff processes and the performance of the stormwater collection system.

The City of Alexandria provided the required data listed below:

- FourMileRun\_Dsewer\_112211.gdb, a checked-out copy of the FMR geodatabase of the stormwater collection system
- Spring 2008 DVD, City GIS data (shapefiles and orthophotography) such as topographic data and land uses
- Spring 2011 DVD, City GIS data (geodatabase and orthophotography) such as topographic data and land use

In addition, Fairfax County provided FairfaxStormwaterData12122011.gdb, a geodatabase of the stormwater collection system and FairfaxPlanimetricData12122011.gdb, a geodatabase of planimetric data. Arlington County provided contour data in a geodatabase.

## Hydrologic Modeling

The hydrologic modeling required two major types of inputs:

- **Hydrologic parameters:** Delineation of catchments and computation of hydrologic parameters such as drainage area, slope, width, and percent impervious for each catchment.
- **Design Hyetographs:** Development of a 24-hour synthetic rainfall distribution for the 10-year design storm event

## Hydrologic Parameters

Hydrologic parameters were estimated using ArcHydro Tools 9 (version 1.4, January 5, 2011) and the ArcGIS version of HEC-GeoHMS.

The ArcHydro tools are a set of public domain utilities developed jointly by the Center for Research in Water Resources (<http://www.crw.utexas.edu>) of the University of Texas at Austin, and the Environmental Systems Research Institute. These tools provide functionalities for terrain processing, watershed delineation, and attribute management. They operate on top of the ArcHydro data model in the ArcGIS environment.

HEC-GeoHMS is geospatial hydrologic modeling software developed and maintained by the Hydrologic Engineering Center (HEC) of the U.S. Army Corps of Engineers. The model allows users to visualize spatial information, perform spatial analysis, delineate subbasins, and estimate watershed hydrologic parameters. The model uses the digital elevation model (DEM) of the subject watershed to compute hydrologic parameters. The “burning in” technique allows the user to impose the drainage system on the terrain to better produce the watershed boundaries. (U.S. Army Corps of Engineers, 2003)

In this study, 2-foot contour data provided by the City were used to create a DEM of the watershed. ArcHydro tools were used to delineate the catchments (referenced as subbasins in the tools). HEC-GeoHMS was used to compute hydrologic parameters, such as drainage area, slope, and longest flow path for each catchment. Width was derived using the catchment drainage area and longest flow path using the equation, width = (area/longest flow path). Percent impervious was estimated in ArcGIS using the delineated catchments and impervious shapefiles provided by the City.

For catchments that extended outside of the City, data was obtained from Arlington and Fairfax Counties to calculate the necessary hydrologic parameters.

A schematic of the hydrologic model for the FMR watershed is presented in Attachment B. The schematic model shows the catchment ID, delineated boundaries, longest flow path, and drainage inlets for each catchment. It also presents the DEM for the watershed. The elevation varies from 2 to 290 feet North American Vertical Datum 1988. The hydrologic parameters for each catchment are presented in Attachment B. The following are the major drainage characteristics for the FMR watershed:

- Total drainage area is 3.01 square miles (1,923 acres)
  - FMR West is 1.36 square miles (868 acres)
  - FMR East is 1.65 square miles (1,055 acres)
- Drainage area divided into 725 catchments
- 46.69 percent of the drainage area is impervious
- Average catchment area is 2.66 acres
- Average catchment slope is 0.07 feet/feet
- Average catchment width is 163 feet

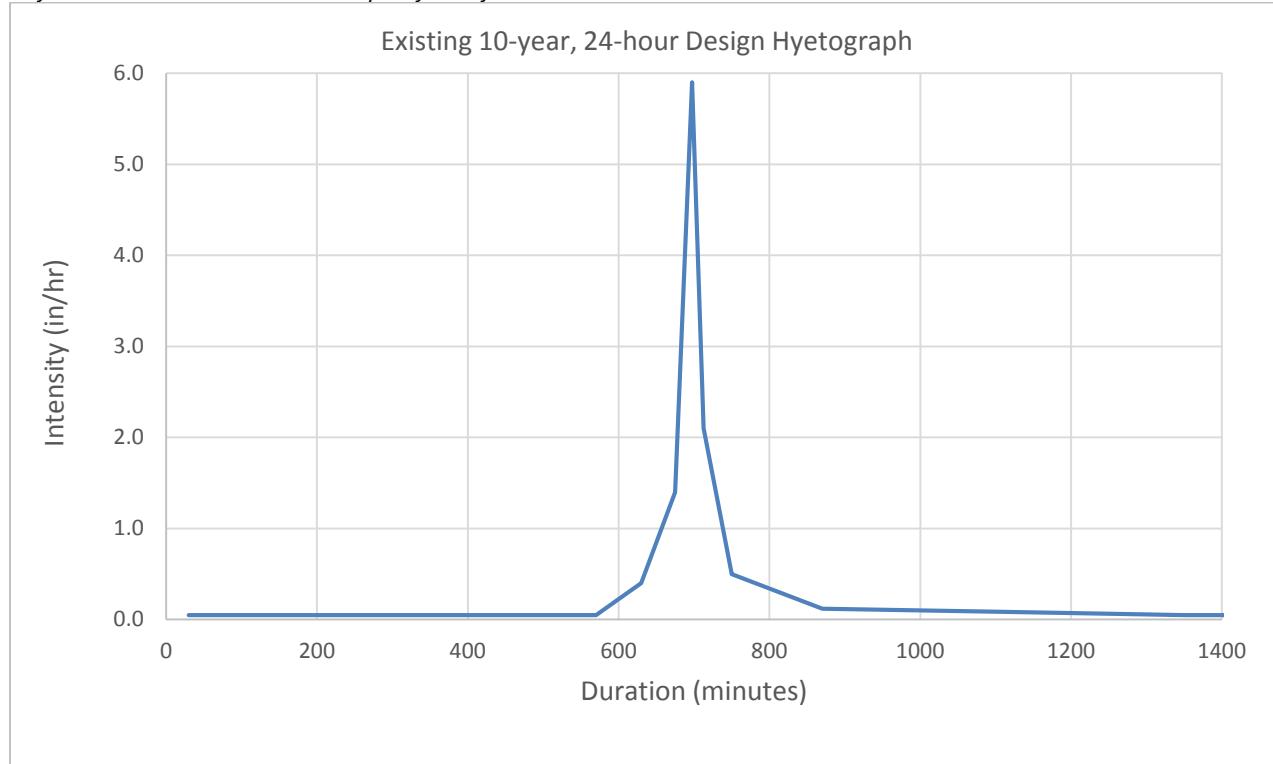
### Design Hyetograph

The 24-hour synthetic rainfall distribution for the 10-year design storm event was developed based on rainfall data from the existing intensity-duration-frequency (IDF) curve for the 10-year return period for Alexandria (City of Alexandria, 1989). Time of concentration values were computed for several inlets in the Hooffs Run pilot subwatershed and the FMR priority subwatershed. Based on these results, the peak rainfall intensity was selected from the IDF curve, based on a 15-minute time of concentration. A variable time interval approach was used to generate the design hyetograph. The design hyetograph was developed to yield maximum rainfall intensity at the approximate center of the 24-hour storm. The 24-hour rainfall total is 5.04 inches, and the peak intensity is 5.9 in./hr. Table 1 and Figure 4 present the existing 10-year, 24-hour design hyetograph.

TABLE 1  
**Existing 10-year 24-hour Design Hyetograph Data**  
*City of Alexandria Storm Sewer Capacity Analysis – Four Mile Run*

Start Time (minutes)	Duration (minutes)	Absolute Rainfall Depth (inches)	Intensity (in/hr)
0	60	0.05	0.05
60	60	0.05	0.05
120	60	0.05	0.05
180	60	0.05	0.05
240	60	0.05	0.05
300	60	0.05	0.05
360	60	0.05	0.05
420	60	0.05	0.05
480	60	0.05	0.05
540	60	0.05	0.05
600	60	0.40	0.40
660	30	0.70	1.40
690	15	1.475	5.90
705	15	0.525	2.10
720	60	0.50	0.50
780	180	0.36	0.12
960	360	0.48	0.08
1320	60	0.05	0.05
1380	60	0.05	0.05

FIGURE 4  
**Existing 10-Year 24-Hour Design Hyetograph**  
*City of Alexandria Storm Sewer Capacity Analysis – Four Mile Run*



## Simulation of Stormwater Runoff

The xpswmm 2012 software was used to simulate rainfall-runoff processes from the FMR watershed. The hydrologic parameters such as area, slope, width, and percent impervious for each of the 725 catchments were estimated using ArcGIS, ArcHydro Tools 9, and ArcGIS version of HEC-GeoHMS, as described earlier. These hydrologic parameters were used as input to the RUNOFF module of the xpswmm model. The design hyetograph for the 10-year return period was also used as input to the RUNOFF module. The U.S. Environmental Protection Agency (USEPA) SWMM Runoff Non-linear Reservoir Method was used to simulate the stormwater runoff from each catchment in response to the hyetograph.

## Hydraulic Modeling

The FMR watershed was analyzed using the widely used and industry-accepted commercial stormwater management computer model, xpswmm. The core simulation engine of this model is based on the USEPA stormwater management model SWMM 5.0. The xpswmm model was used to simulate the hydraulic performance of the stormwater collection system during a 10-year design storm event. Model input data included the following physical data:

- Junctions (inlet, manhole, nodes, etc.), such as invert and rim elevations and inlet capacity
- Closed and open conduits, such as invert elevations, size, shape, material, and length
- Stormwater storage ponds, such as stage-storage relationships
- Control devices (orifices, weirs, etc.)

The data for the stormwater collection system were primarily imported into the model from the geodatabase provided by the City. This geodatabase was updated with survey data for structures that are attached to pipes that are 24 inches or more in diameter and considered public. Private structures were not modeled, so any private runoff was applied to the next downstream public inlet. All elevations (invert and rim) recorded in the geodatabase of the stormwater collection system are in NAVD 88 datum; therefore the xpswmm model was built in NAVD 88.

There is an area along Dawes Avenue within the subwatershed 1 where stormwater runoff flows into Fairfax County then back into Alexandria. Pipe slopes, lengths, and diameters were obtained from Fairfax County's GIS data and used to estimate the connectivity from Alexandria to Fairfax, and then back into Alexandria.

Entrance or exit loss coefficients were applied to pipes at connections where pipe size significantly increased or decreased. An exit loss coefficient of 0.15 was applied to the smaller (upstream) pipe where the downstream pipe was 2 or more times the size of the upstream pipe. An entrance loss coefficient of 0.1 was applied to the smaller (downstream) pipe where the downstream pipe was half the size, or smaller, of the upstream pipe.

There are several outfalls in FMR West and each was assumed to be a free outfall downstream boundary condition. This was considered to be appropriate since a cursory review of the pipe flowing into Arlington County appeared to be at significant slopes. Depending on the location, outfalls in FMR East were either assumed a free outfalls or a tidal control boundary condition was included. A list of outfalls and corresponding boundary conditions is available in Attachment D. For those outfalls that were tidally influenced, a typical existing tidal condition was computed, averaging 6 months of tidal data (February–July 2012) from the Hains Point tidal gauge (station 8594900) in the Potomac River: (elevations in NAVD88)

- Mean higher high water = 2.02
- Mean high water = 1.83
- Mean low water = -0.96
- Mean Lower Low Water = -1.15

There are several open channel reaches (e.g., road side swales, open channels connecting pipe systems, etc.) within the FMR watershed. One of these reaches is included with the City's GIS data (spring 2008). The other reaches were digitized inside the xpswmm model using the aerial photography. Natural cross-sections were

added to the model using the 2-foot contours from the City's GIS data (spring 2008) and associated with the digitized open channel reaches.

The hydraulic modeling was performed to analyze the pipe capacities by loading the runoff directly into the nodes of the modeled storm sewer system. This approach does not model the flow restrictions caused by the surface inlets. The flow directly entering the collection system provides a conservative or "worst case" evaluation of pipe capacities.

## Model Results

Model results are summarized in the following sections.

### Hydrologic Model Results

Peak discharge for each node where overland flow was loaded into the hydraulic model is provided in Attachment C.

### Inlet Capacity Results

Inlet capacity was evaluated outside xpswmm due to limitations in the modeling software's capabilities. Details on the evaluation of the options for modeling inlet capacity are provided in *Inlet Capacity Analysis for City of Alexandria Storm Sewer Capacity Analysis* (CH2M HILL, 2012a), which was provided to the City in September 2012. The spreadsheet evaluation multiplies the maximum capacity of a single inlet, estimated to be 3.25 cfs based on an assumed standard gutter spread and road cross-section, by the total number of catch basins and inlets draining to a single runoff input point, the location where overland flow was plugged into the hydraulic model. The model has flow loaded into 562 locations with an average of 3.5 inlets per runoff input point. The estimated capacity for each load point was compared to the peak runoff generated in the RUNOFF module of xpswmm to determine whether the catchment has sufficient inlet capacity. Results suggest that about 60 percent or 433 of 723 of the model load points, representing 73 percent of the FMR drainage area, may be experiencing inlet capacity deficiencies.

The total inlets and catch basins count is based on the City's GIS data for FMR watershed, including all private and disconnected inlets and catch basins. The City's GIS data does not include all private structures in the FMR watershed since they are not always included in survey efforts. This effectively underestimates the City's available inlet capacity in this analysis. Inlet capacity results are presented in detail in Attachment C.

### Hydraulic Model Results

Model results for the pipes and stream segments are summarized in the following sections. Detailed results are presented in Attachment D.

#### Pipe Capacity

The conveyance capacity of the existing stormwater collection system during the storm event listed above was evaluated based on three criteria, listed in order of decreasing severity:

- If the hydraulic grade line (HGL) rose above the ground surface, the structure was considered flooded.
- If the HGL rose to within 2 feet of the ground surface, the structure was considered to have insufficient freeboard.
- If the HGL rose above the crown of the pipe but was more than 2 feet from the ground surface, the structure was considered surcharged.

Pipes were evaluated for these conditions at the upstream end. In some cases the water surface was within 2 feet of the ground surface, but within the pipe (not surcharging), because the crown of the pipe was less than 2 feet from the ground surface. In those cases, the pipes were not included in the "insufficient freeboard" category.

Additional details on the results are presented in the following section. The pipes with flooded, insufficient freeboard and surcharged conditions are summarized in Table 2 and 3. A plan view of the FMR watershed is

provided in Figures 5a and 5b, depicting the pipes experiencing flooding, insufficient freeboard, and surcharged conditions. Profiles which display the conditions of the pipes along the main storm sewer line within the FMR watershed can be found in Attachment D.

The example profiles display the following:

- Vertical cross-sectional view of the conduits, including the invert and crowns. They also illustrate the flow conditions such as partially full, full, or surcharged.
- Water surface elevation in the conduit (i.e., HGL)
- HGL in junctions such as manholes, inlets, and nodes
- HGL above the conduit crown (surcharged conditions)
- HGL above the ground (flooding)

Note that the profiles presented only show a snapshot of the system during the model simulation. These profiles will not always show the most severe flooding at each location. For example, the profile may not show the flooding symbol at a location even though surface flooding does occur either before or after the snapshot of the profile was taken.

The detailed model results are presented in tabular format in Attachment D. The results presented in this memorandum should be reviewed with the understanding that flow data were not available for model calibration, and several assumptions were made to fill data gaps, primarily assumptions about pipe invert levels where survey data were unavailable.

The model results presented in Table 2 show that 24 percent of the pipes flood the ground surface, 16 percent have a hydraulic grade line within 2 feet of the surface, and 14 percent surcharge above the crown of the pipe. The majority of the capacity deficiencies are seen in FMR East and the issues appear to be more systemic than in FMR West.

TABLE 2

**Watershed Modeling Results, Summarized by Pipe Size**

City of Alexandria Storm Sewer Capacity Analysis – Four Mile Run

Equivalent Pipe Diameter (ft)	Sufficient Capacity			Surcharged			Insufficient Freeboard			Flooded		
	Count	Length (LF)	Percent of Total Length	Count	Length (LF)	Percent of Total Length	Count	Length (LF)	Percent of Total Length	Count	Length (LF)	Percent of Total Length
Less than 2.0	266	24,005	15	159	10,998	7	178	12,606	8	319	23,255	15
2.0 to 2.75	146	15,052	9	62	6,530	4	68	8,046	5	79	9,636	6
3.0 to 4.9	192	23,986	15	38	3,252	2	35	4,633	3	53	5,588	4
5.0 to 10	52	9,527	6	12	1,435	1	1	0	0	3	155	0
<b>Total</b>	<b>656</b>	<b>72,570</b>	<b>46</b>	<b>271</b>	<b>22,216</b>	<b>14</b>	<b>282</b>	<b>25,285</b>	<b>16</b>	<b>454</b>	<b>38,634</b>	<b>24</b>

Note: Table does not include pipes upstream of hydrologic load points in the model

Results are based on results at upstream end of pipe

ft = feet

LF = linear feet

TABLE 3

**Watershed Model Results, Summary by Capacity**

City of Alexandria Storm Sewer Capacity Analysis – Four Mile Run

Capacity	Conduit Count	Conduit Length (LF)	Percent of Total Length	Duration (hr)				Volume (ft <sup>3</sup> ) <sup>a</sup>			
				Max.	Min.	Avg.	Total	Max.	Min.	Avg.	Total
Sufficient Capacity	656	72,570	46	—	—	—	—	—	—	—	—
Surcharged <sup>b</sup>	271	22,216	14	55.2	0.1	1.7	2,262	—	—	—	—
Insufficient Freeboard	282	25,337	16	—	—	—	—	—	—	—	—
Flooded	454	38,634	24	54.1	0.0	1.6	746	205,056	0.3	7,175	3,257,585

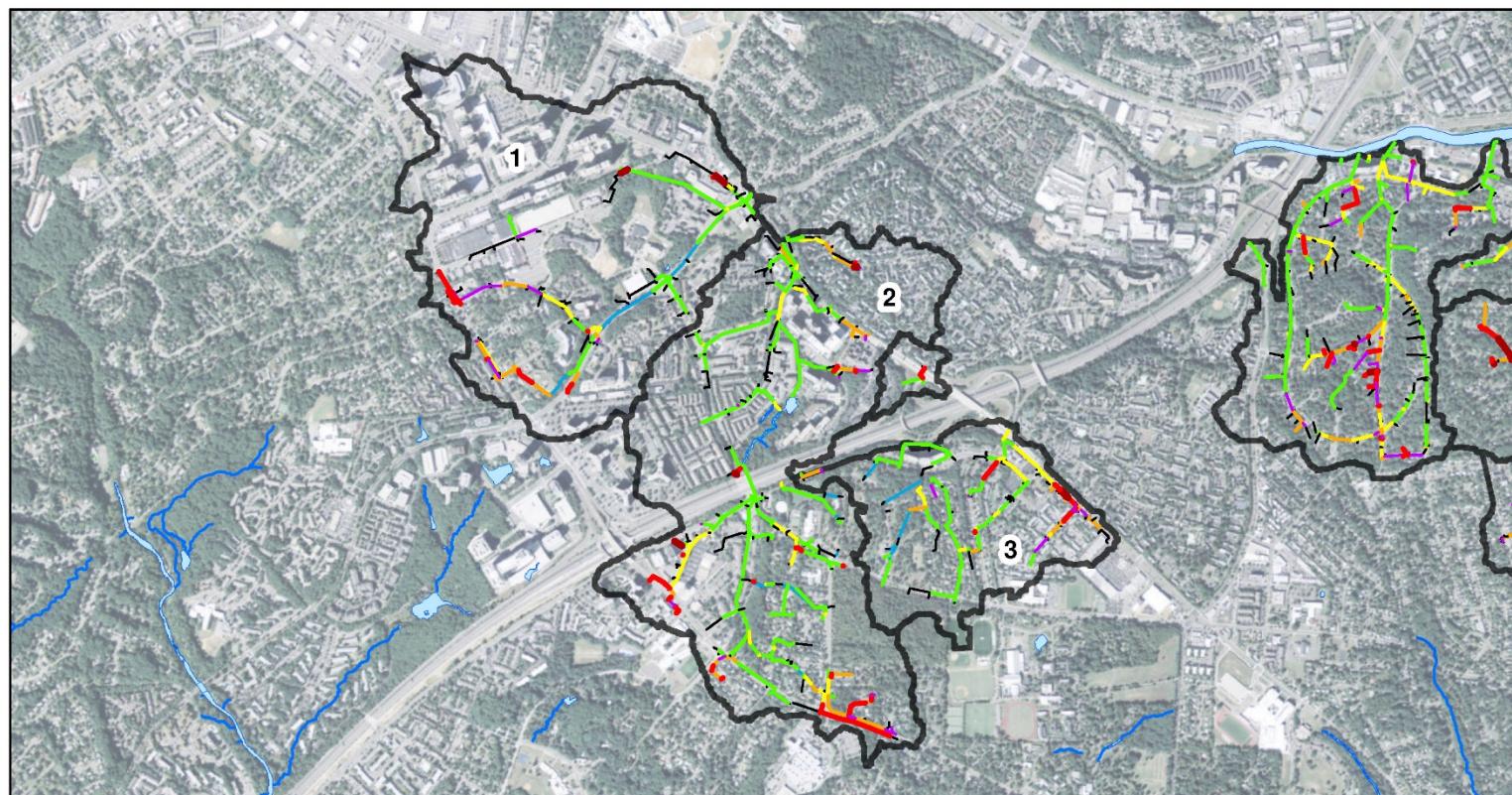
Notes: All results presented for pipe segments based on capacity at upstream end of pipe.

<sup>a</sup> Flooded volume<sup>b</sup> Duration of surcharged flow includes time during which conduits have insufficient freeboard or are flooded at the upstream end.ft<sup>3</sup> = cubic feet

hr = hour

LF = linear feet

FIGURES 5A AND 5B  
**Watershed Modeling Results**  
*City of Alexandria Storm Sewer Capacity Analysis – Four Mile Run*

**LEGEND****Model Results**

Sufficient Capacity  
 ———  
 Surcharged Insufficient Freeboard  
 ———

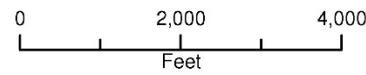
**Flooded Volume (cu. ft.)**

- 0.1 - 1,000
- 1,000 - 10,000
- 10,000 - 65,000
- Not Analyzed
- (Private, disconnected, upstream of runoff input)

- Modeled Streams
- City of Alexandria Streams
- Water Bodies
- Subwatersheds

**FIGURE 5a**

Four Mile Run Watershed Modeling Results (West)  
*Stormwater Capacity Analysis for Four Mile Run Watershed  
 City of Alexandria, Virginia*

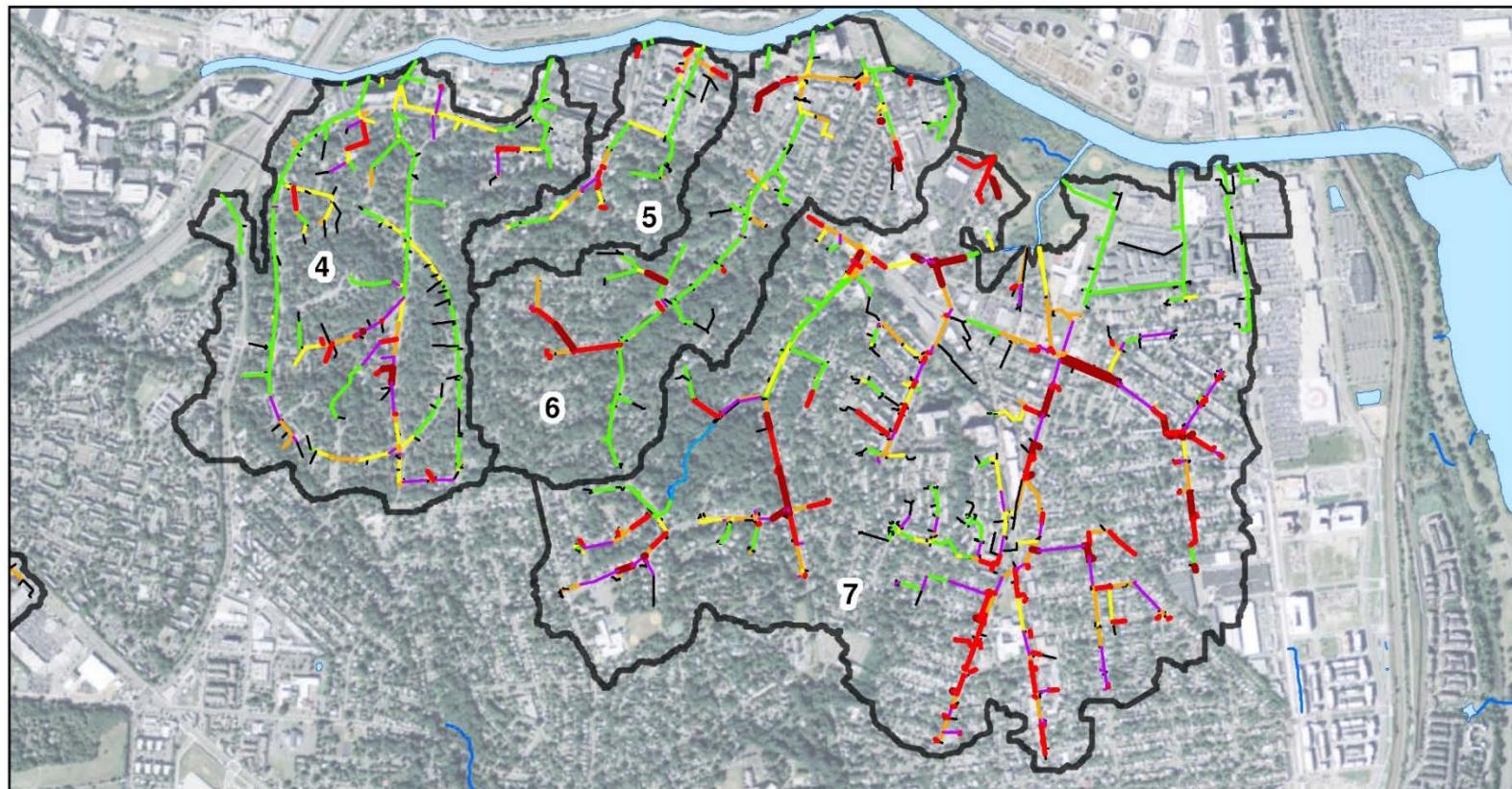


Note: Subwatershed number provided  
 in each subwatershed.



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**LEGEND****Model Results**

- Sufficient Capacity
- Surcharged
- Insufficient Freeboard

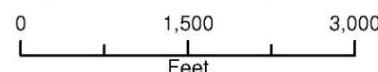
**Flooded Volume (cu. ft.)**

- 0.1 - 1,000
- 1,000 - 10,000
- 10,000 - 200,000
- Not Analyzed
- (Private, disconnected, upstream of runoff input)

- Modeled Streams
- City of Alexandria Streams
- Water Bodies
- Subwatersheds

**FIGURE 5b**

Four Mile Run Watershed Modeling Results (East)  
*Stormwater Capacity Analysis for Four Mile Run Watershed  
 City of Alexandria, Virginia*



Note: Subwatershed number provided  
 in each subwatershed.

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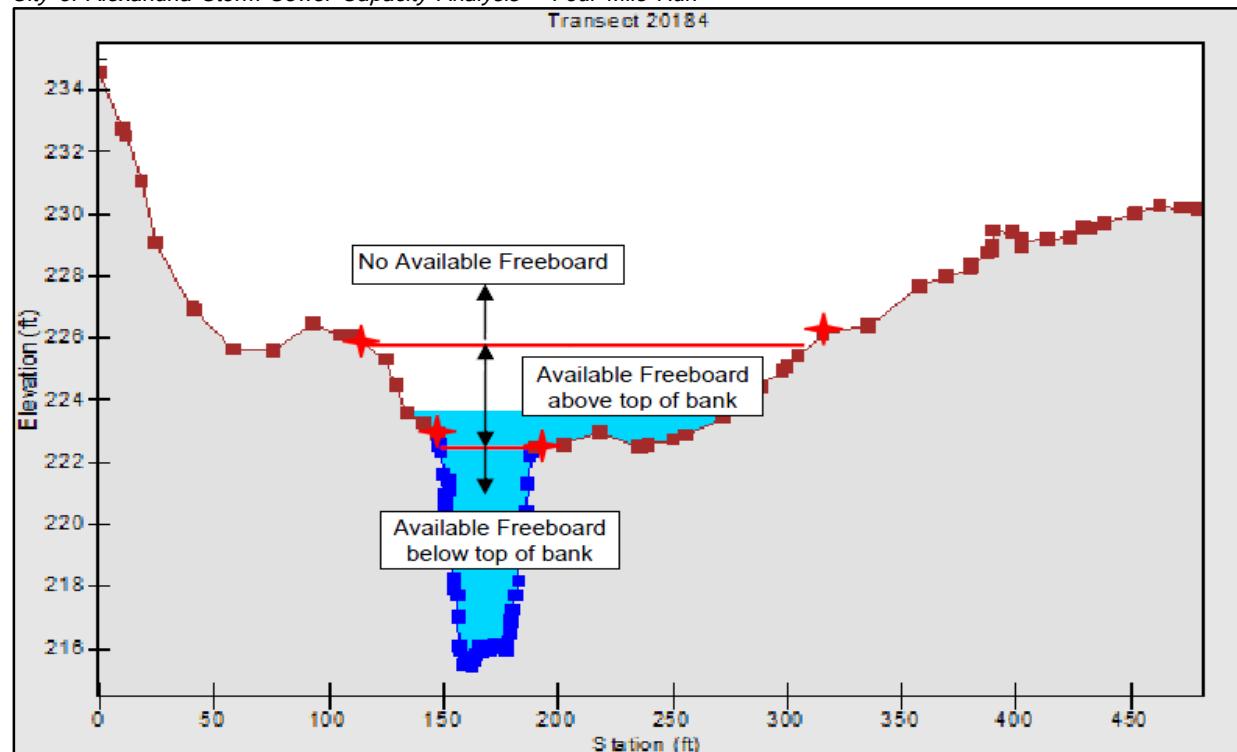


## Open Channel Results

Water surface levels generated by the model were compared to two points defined on each cross section: top of cross section and top of bank. These points are defined in Figure 6. The conveyance at each cross section was then defined as falling into one of three categories:

- No available freeboard: HGL above the top of cross section
- Available freeboard above top of bank: HGL above the top of bank yet remained below the top of cross section
- Available freeboard below top of bank: HGL below the top of bank

FIGURE 6  
Sample Cross Section  
*City of Alexandria Storm Sewer Capacity Analysis – Four Mile Run*



Data on open channel segments were defined by the most recent topographic data provided by the City of Alexandria. While included, open channels were not the focus of this modeling effort, and therefore the capacity of open channels will not be reported in terms other than those described above. Results for stream segments are summarized in Table 4.

TABLE 4  
Summary Results for Open Channels  
*City of Alexandria Storm Sewer Capacity Analysis – Four Mile Run*

Scenario	Linear Feet of Stream		
	Available Freeboard Below Top of Bank	Available Freeboard Above Top of Bank	No Available Freeboard
1. Existing IDF, existing boundary conditions	916	1720	156

The location of the open channels that were analyzed to create Table 4 are located along North Beauregard Street, at Park Center just north of I-395, Just south of Ivor Lane, and In Monticello Park. The water

elevations of all of the open channels appear to have enough capacity to that the water surface elevation of the 10-year storm does not reach any surrounding structures.

## Summary

The hydraulic model predicts that a large portion of the FMR watershed is experiencing capacity deficiencies during the 10-year, 24-hour design storm. The majority of the capacity deficiencies are seen in FMR East and the issues appear to be more systemic than in the FMR West. The model results show that 24 percent of the pipes flood the ground surface, 16 percent have a hydraulic grade line within 2 feet of the surface, and 14 percent surcharge above the crown of the pipe. Comparing the peak runoff to the estimated inlet capacity of each catchment indicates that 60 percent of the catchments in the model may have insufficient inlet capacity. Maps and profiles of flooding areas are presented in this technical memorandum to assist in locating problem areas and understanding the capacity deficiencies of the drainage system.

The hydraulic modeling results presented in this memorandum should be reviewed with the understanding that several assumptions were made to fill data gaps, primarily assumptions of inverts in pipes with diameters less than 24 inches.

## References

These documents were consulted in the preparation of this memorandum. Not all are cited in the text.

City of Alexandria. 1989. *Design and Construction Standards*. Department of Transportation & Environmental Services. July.

City of Alexandria. 2008. City of Alexandria GIS data. Spring.

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CH2M HILL. 2009c. *Sea Level Rise Potential for the City of Alexandria, Virginia*. Prepared for City of Alexandria Transportation & Environmental Services Department. June 12.

CH2M HILL. 2011. *Rainfall Frequency and Global Change Model Options for the City of Alexandria*. Prepared for City of Alexandria Transportation & Environmental Services Department. August 30.

CH2M HILL. 2012a. *Inlet Capacity Analysis for City of Alexandria Storm Sewer Capacity Analysis*. Prepared for the City of Alexandria Transportation & Environmental Services Department. September 12.

CH2M HILL. 2012b. *Summary of Data Gaps and Assumptions in the Hooffs Run Watershed*, Prepared for the City of Alexandria Transportation & Environmental Services Department. October 22.

CH2M HILL. 2016. *Stormwater Capacity Analysis for Hooffs Run Watershed, City of Alexandria, Virginia*. Prepared for the City of Alexandria Transportation & Environmental Services Department. February.

CH2M HILL and Michael Baker Jr., Inc. 2012. *Stormwater Capacity Analysis for King Street and North Beauregard Street Intersection (Four Mile Run Priority Area), City of Alexandria, Virginia*. Prepared for the City of Alexandria Transportation & Environmental Services Department. July 20.

U.S. Army Corps of Engineers (USACE). 2003. *User's Manual, Geospatial Hydrologic Modeling Extension HEC-GeoHMS*. Hydrologic Engineering Center, the US Army Corps of Engineers. Version 1.1. December

**Attachment A**

**Methodology for Identifying Public vs. Private  
Structures: August 6, 2009, Meeting Summary**

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# **City of Alexandria Storm Sewer Capacity Analysis Project – Task Order 1**

**Meeting, August 6, 2009 (2:30-3:00 pm)**

**ATTENDEES:**

Craig Perl/City of Alexandria  
Laurens van der Tak/CH2M HILL  
Cheri Salas/ CH2M HILL

FROM: Cheri Salas/CH2M HILL

DATE: August 7, 2009

PROJECT NUMBER: 383412

## **Meeting Purpose**

Review memorandum dated July 31, 2009, entitled Evaluation of modeling issues discussed during July 27, 2009 Progress Meeting

- Discuss results of initial public\private structure determinations
- Review initial evaluation of survey data quality
- Discuss altered approach to filling data gaps associated with missing inlet inverts

## **Meeting Review**

### **Private vs. Public Structures**

It was difficult to readily identify structures as private or public, based solely on the parcel layer because of potential errors in the structure locations. The memorandum includes several examples. Several of these include individual public structures that are upstream of larger private storm sewer areas. Craig will share these with Suzanne and others to confirm a path forward. It was agreed that regardless of the path forward on future sewersheds, we would not change the model for the pilot sewershed, but will not attempt to evaluate capacity limitations in the private areas. Craig will confirm which areas in the memo examples should be evaluated.

As we move into the remainder of Hooffs Run CH2M HILL will identify large areas of private sewers based on a broad visual review of the sewersheds, CH2M HILL will recommend a starting point for the hydraulic model (pour point for hydrologic basin) and allow the City to review the recommendations prior to beginning filling data gaps or modeling.

Stormwater ponds were discussed. These are mostly, if not all, private facilities; however they should have significant impact on the peak flows in the system. It was recognized that there is significant effort associated with obtaining the data for these ponds, and adding it to

the model. The one pond in the pilot sewershed was retrofitted since the as-built plans; therefore a site visit may be required to obtain appropriate outlet dimensions.

### **Survey Data Quality**

We do not foresee any significant data issues in the Pilot sewershed related to surveyed inverts; however it may be a bigger issue as we move into flatter sewersheds. This issue will be tabled until we move on to other sewersheds

### **Filling Data Gaps in Inlet Inverts**

As we were filling data gaps we recommended using a 1-foot depth to invert for all inlets for which the data were not available. In approximately 15 of the 153 inlets for which invert data were not available, the pipe diameter was larger than 12-inches, resulting in model errors. A revised approach of using the pipe diameter plus 6-inches as the assumed depth to invert is recommended, however it is unclear whether this approach will be appropriate for the locations in question. CH2M HILL will provide a Google Earth Map of these inlets and Craig will review, and possibly conduct field inspections. CH2M HILL will not continue modeling of the pilot shed until results of this review are received.

### **Action Items**

Craig will share July 31, 2009 memo with additional City staff and determine extent of capacity evaluation in pilot area. He will also confirm recommended path forward.

Craig will determine preferred approach to inclusion of stormwater ponds in the model.

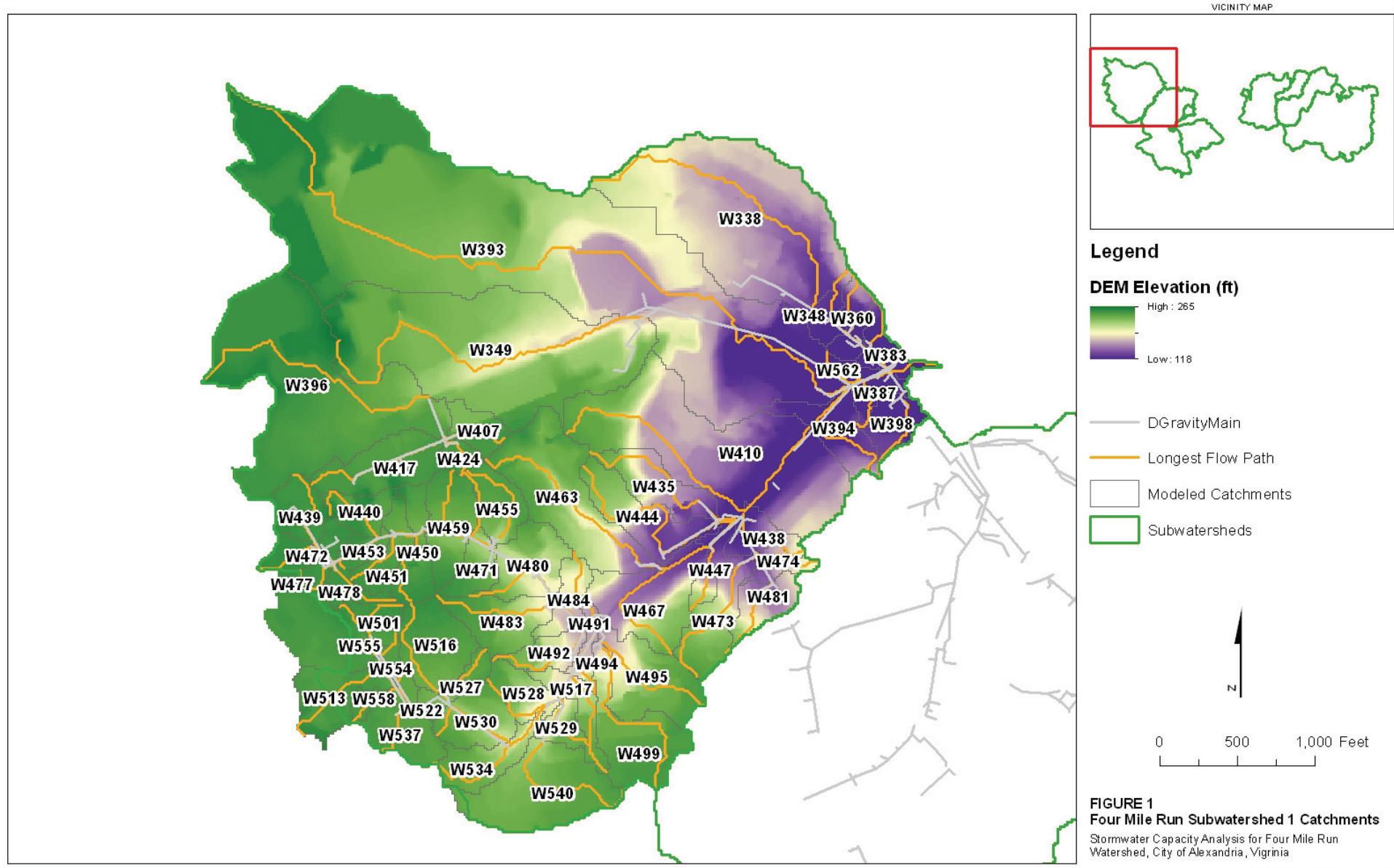
Cheri will provide Google Earth maps of locations where a 1-foot depth to invert was not sufficient.

Craig will review these sites and provide input on an appropriate assumption moving forward.

**Attachment B**  
**Hydrologic Model Schematic and Parameters**

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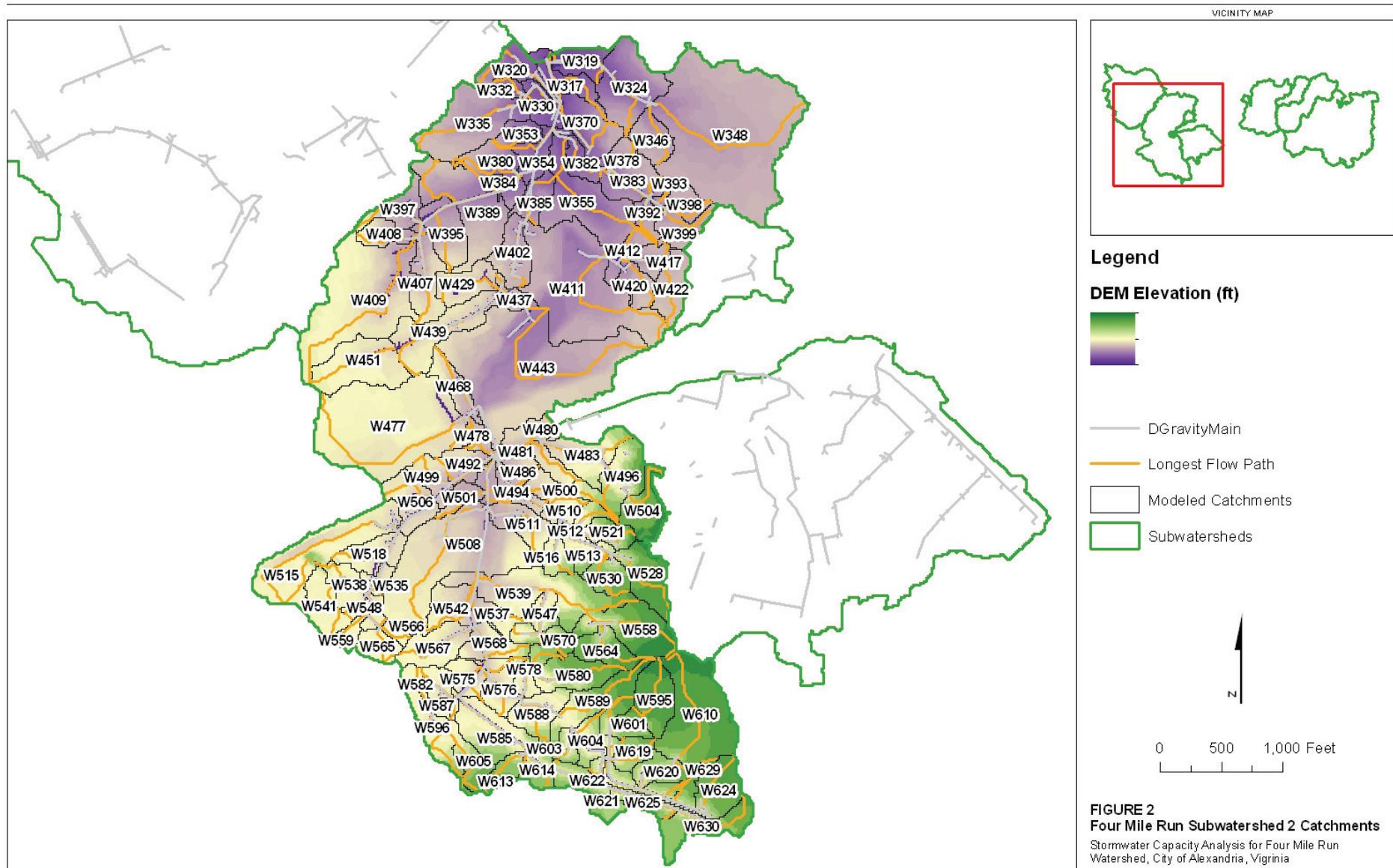




**FIGURE 1**  
**Four Mile Run Subwatershed 1 Catchments**

Stormwater Capacity Analysis for Four Mile Run Watershed, City of Alexandria, Virginia

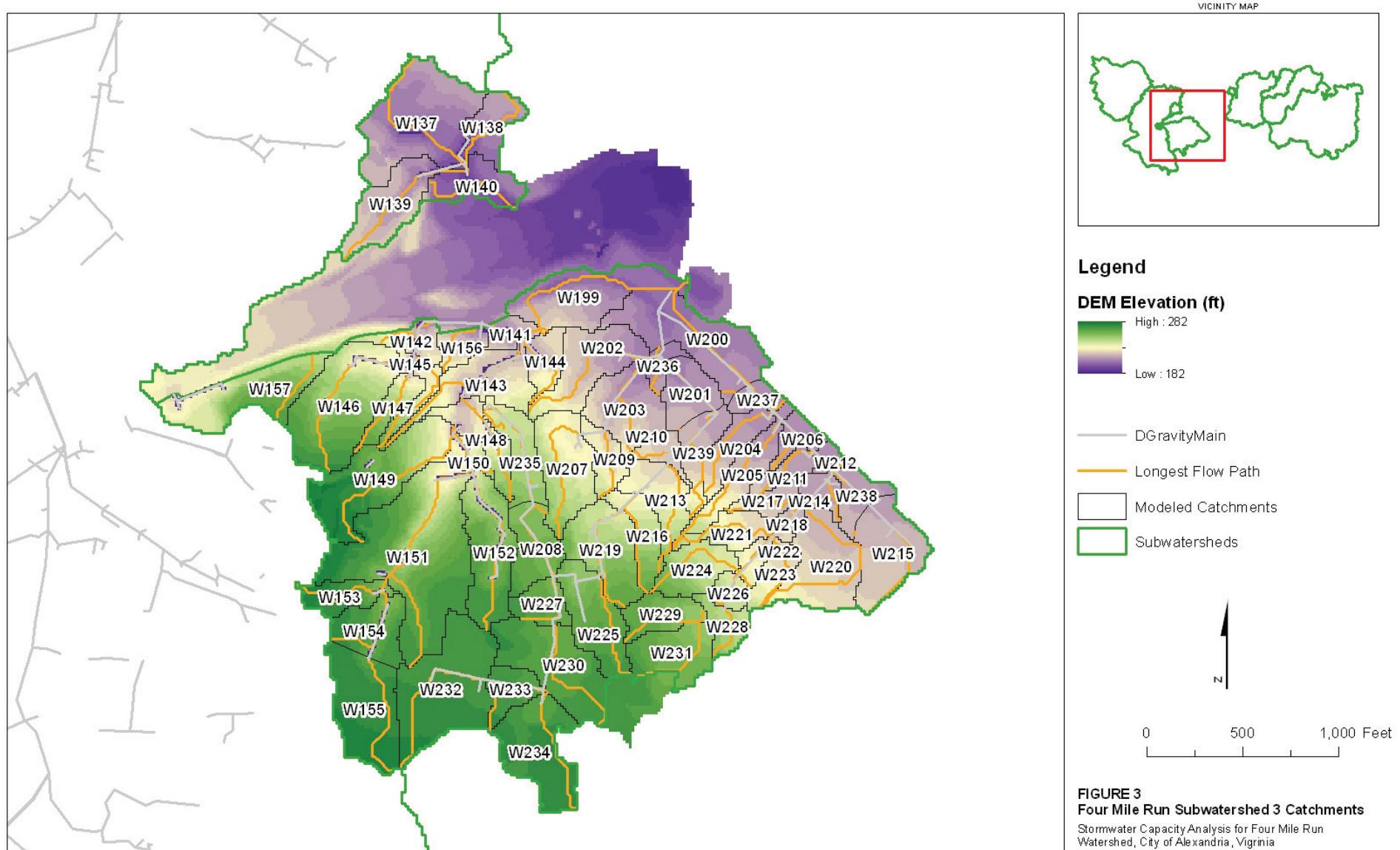




**FIGURE 2**  
**Four Mile Run Subwatershed 2 Catchments**

— CHAMHILL Baker

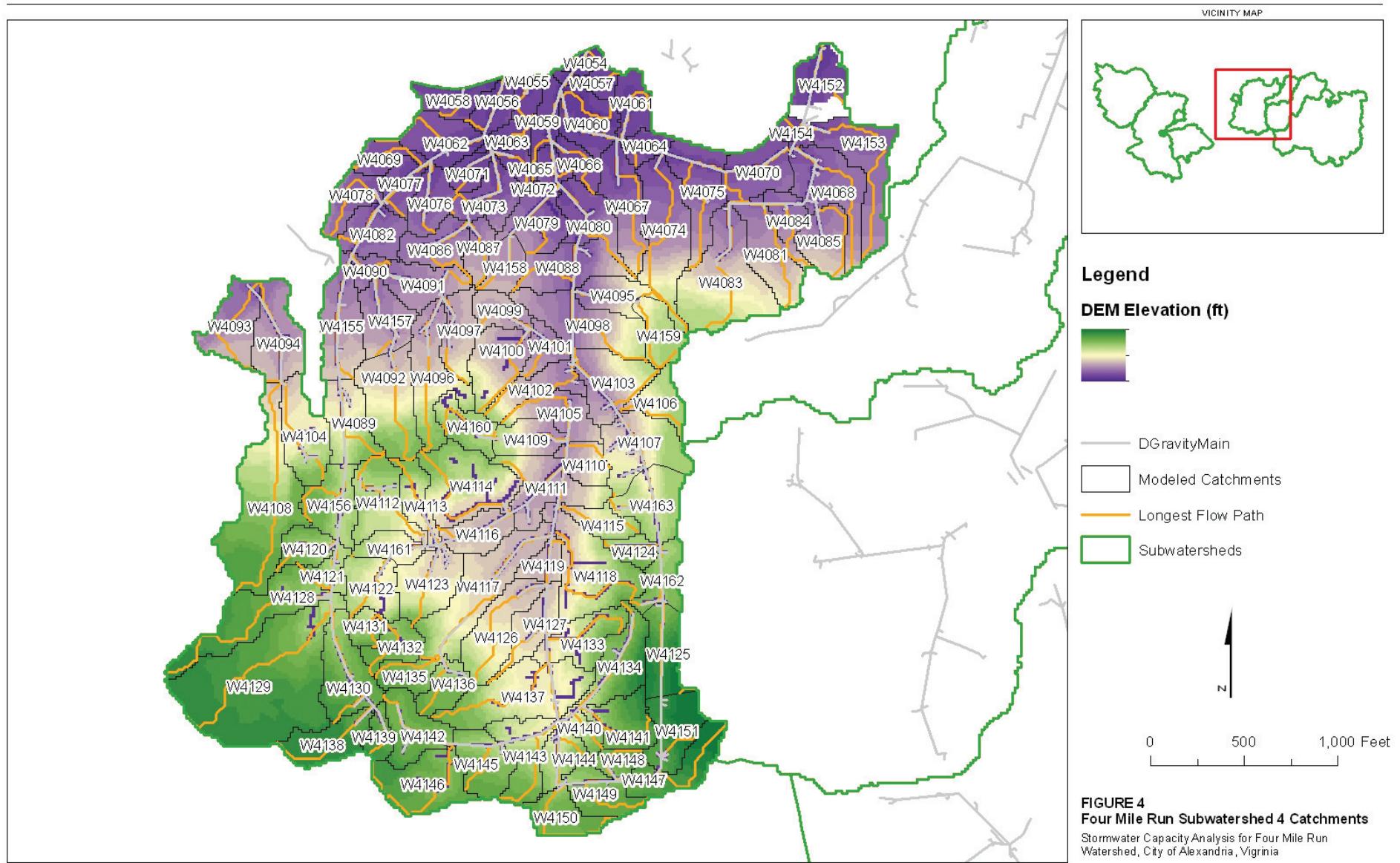




**FIGURE 3**  
**Four Mile Run Subwatershed 3 Catchments**

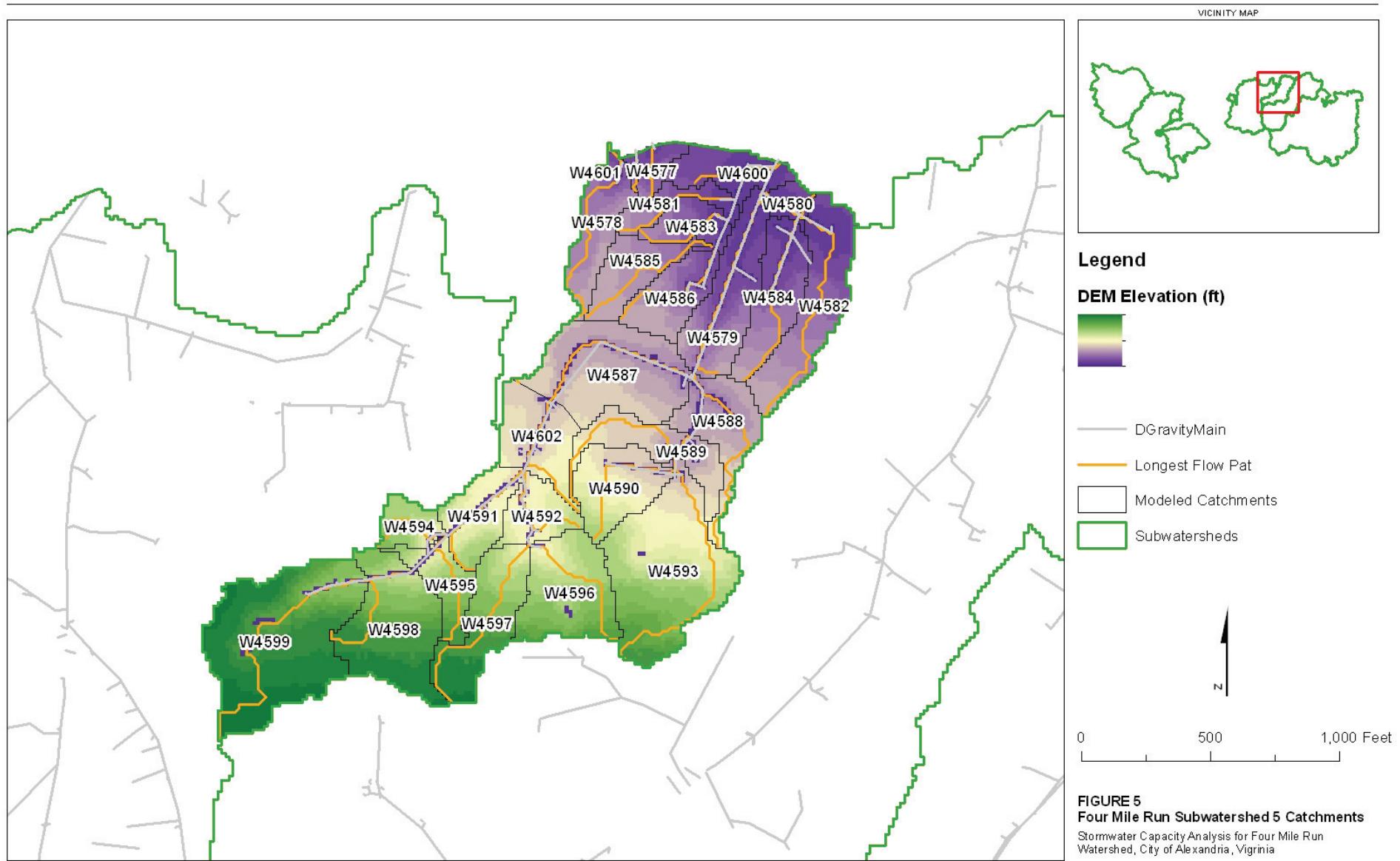
Stormwater Capacity Analysis for Four Mile Run Watershed, City of Alexandria, Virginia





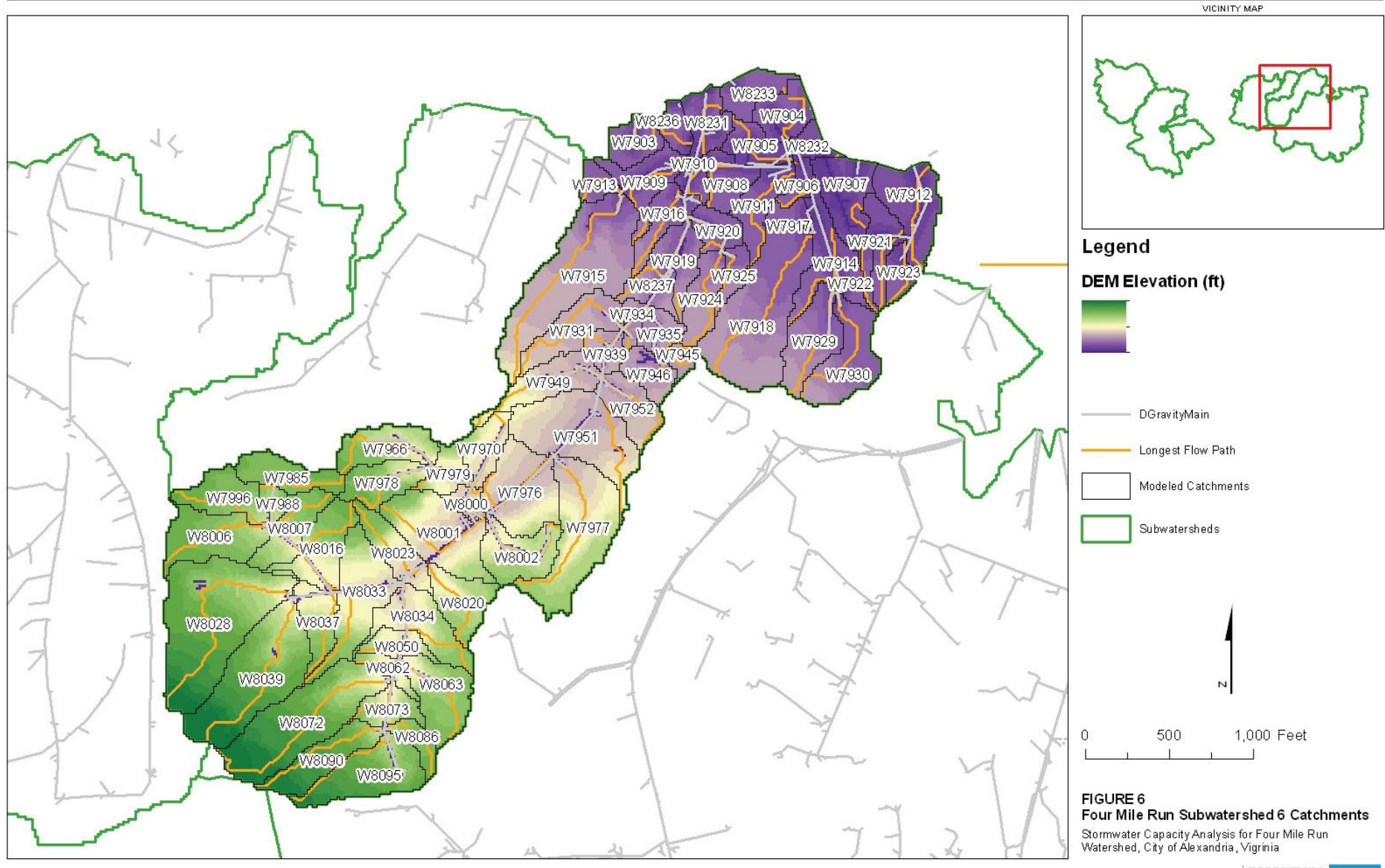
**FIGURE 4**  
**Four Mile Run Subwatershed 4 Catchments**  
 Stormwater Capacity Analysis for Four Mile Run  
 Watershed, City of Alexandria, Virginia



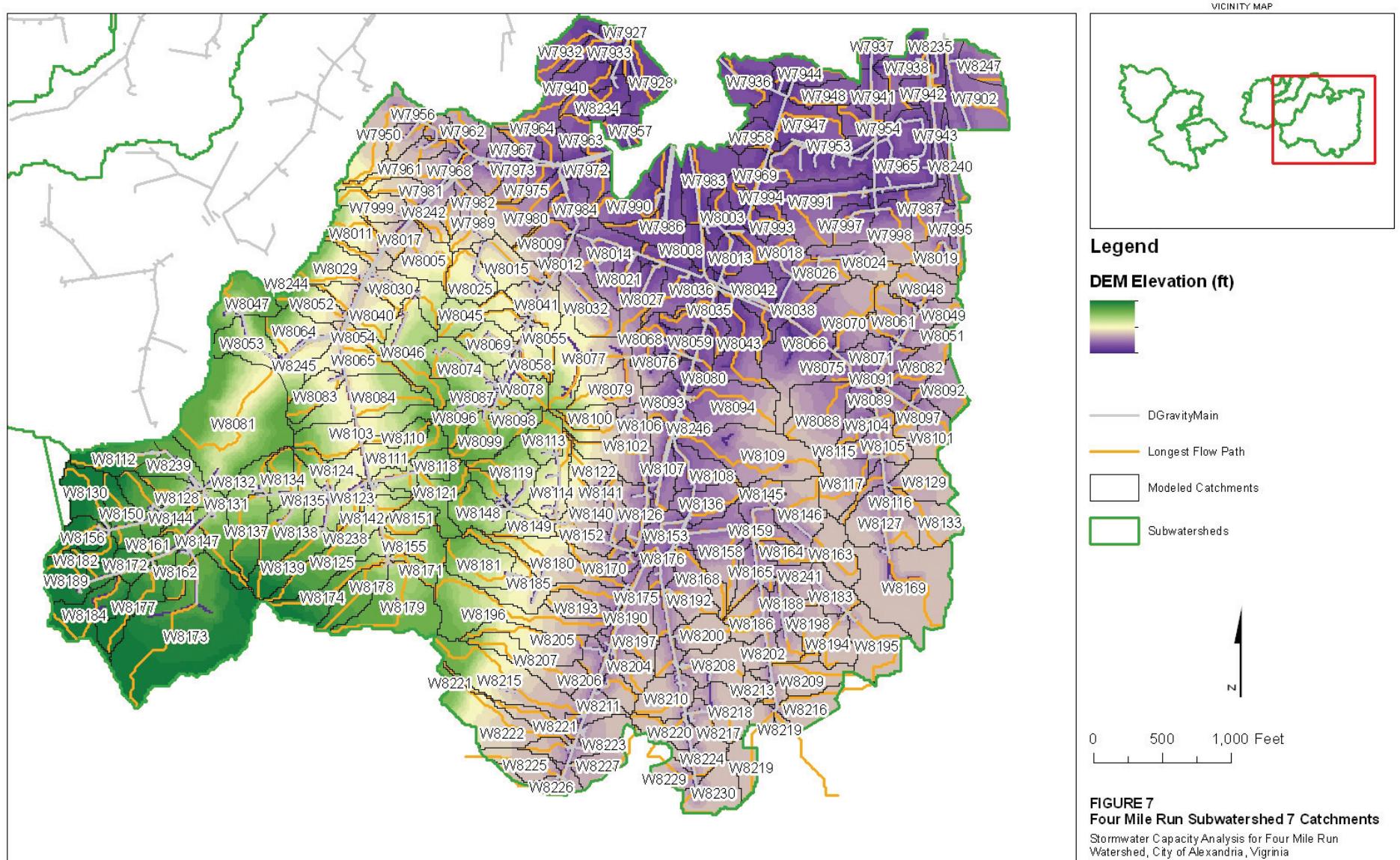


**FIGURE 5**  
**Four Mile Run Subwatershed 5 Catchments**  
 Stormwater Capacity Analysis for Four Mile Run  
 Watershed, City of Alexandria, Virginia









**FIGURE 7**  
**Four Mile Run Subwatershed 7 Catchments**



TABLE 1

**Infiltration Data**

Parameter	Value
Average Capillary Suction (in)	8.27
Initial Moisture Deficit	0.154
Saturated Hydraulic Conductivity (in/hr)	0.2

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

Subwatershed	HydroID	Area (ac)	Basin Slope (%)	Width	Percent Impervious	Model Load Point
1	W338	24.845	6.401	481.1	15.39	000365SMH
1	W348	1.689	7.298	136.6	114.68	000328SMH
1	W349	29.458	8.312	452.0	5.82	000394SMH
1	W360	2.087	12.581	140.8	7.20	000372SMH
1	W383	2.118	8.185	87.2	25.54	000374SMH
1	W387	1.456	6.983	105.5	4.86	004040SMH
1	W393	75.956	6.651	596.8	1.00	000392SMH
1	W394	3.822	11.482	180.6	18.84	000390SMH
1	W396	24.241	2.548	557.9	14.00	000191ND
1	W398	2.614	10.061	169.7	30.30	0001048IN
1	W407	2.061	4.604	179.9	41.18	001127IN
1	W410	22.527	11.171	434.5	2.99	000089IO
1	W417	5.274	2.700	219.8	22.64	001101IN
1	W424	1.012	1.494	121.3	923.55	001100IN
1	W435	4.075	16.577	137.5	31.41	000904IN
1	W438	2.135	13.455	133.7	635.38	000316SMH
1	W439	2.670	2.352	191.3	100.19	000577SMH
1	W440	2.200	6.991	153.1	95.42	000564SMH
1	W444	5.139	11.445	131.4	7.89	000902IN
1	W447	1.629	15.383	98.1	36.07	000081IO
1	W450	2.939	4.381	216.0	127.89	000567SMH
1	W451	2.557	2.953	184.2	87.11	000566SMH
1	W453	1.286	2.770	117.1	14.65	000565SMH
1	W455	3.027	5.453	163.4	19.07	000939IN
1	W459	4.385	5.205	309.2	12.64	000568SMH
1	W463	10.795	11.863	294.0	39.58	000011IO
1	W467	7.195	17.928	253.1	4.03	000079IO
1	W471	2.154	7.603	155.3	97.84	000321SMH
1	W472	2.335	1.637	170.7	38.37	000571SMH
1	W473	4.390	11.071	167.5	14.89	001083IN
1	W474	1.415	12.609	123.1	23.77	001084IN
1	W477	1.043	0.788	95.3	304.81	000578SMH
1	W478	1.250	0.292	107.1	28.39	000572SMH
1	W480	4.478	11.212	261.6	9.62	000322SMH

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
1	W481	2.681	13.756	183.4	19.66	001080IN
1	W483	4.292	7.682	214.4	18.46	000323SMH
1	W484	2.252	11.783	166.4	103.42	000930IN
1	W491	0.356	10.909	62.1	103.96	000931IN
1	W492	2.195	11.579	105.5	21.08	000320SMH
1	W494	0.940	9.835	73.9	44.19	000389SMH
1	W495	6.012	9.647	257.0	10.09	001026IN
1	W499	6.142	4.220	190.4	9.14	000927IN
1	W501	1.663	1.878	161.8	85.29	000562SMH
1	W513	2.030	0.500	160.0	53.00	000560SMH
1	W516	5.077	2.486	296.0	6.54	000114IO
1	W517	2.355	9.308	136.9	21.97	000921IN
1	W522	0.476	2.129	67.0	289.49	000554SMH
1	W527	1.710	4.168	149.9	63.86	000556SMH
1	W528	2.443	11.420	166.3	46.67	000083IO
1	W529	1.508	12.530	135.8	6.63	000920IN
1	W530	3.704	8.729	231.8	26.94	000115IO
1	W534	3.301	8.534	134.4	5.75	000919IN
1	W537	3.368	1.966	337.4	51.19	000552SMH
1	W540	8.740	1.700	404.0	81.00	000319SMH
1	W554	0.626	1.451	120.9	119.38	000559SMH
1	W555	1.158	3.071	163.9	124.09	000561SMH
1	W558	0.997	1.931	96.8	30.08	001649IN
1	W562	0.817	5.343	97.6	97.18	000369SMH
2	W634	2.111	11.581	114.5	37.42	000397SMH
2	W635	1.198	4.212	210.3	28.40	000396SMH
2	W636	2.655	11.025	117.2	15.86	000376SMH
2	W637	6.204	16.747	327.9	20.10	000103SMH
2	W638	1.007	7.989	100.3	77.19	000383SMH
2	W639	0.857	17.638	90.6	1761.67	0001074IN
2	W640	7.562	9.935	287.9	33.06	0001077IN
2	W641	2.454	8.824	179.4	25.73	000099SMH
2	W642	26.441	4.541	670.7	1.25	000100SMH
2	W643	1.493	16.007	122.4	211.00	0001066IN
2	W644	1.978	7.198	135.8	61.93	000364SMH
2	W645	7.660	15.764	215.0	7.62	000324SMH
2	W646	2.458	17.801	156.2	32.54	000378SMH
2	W647	1.074	13.237	116.2	79.58	000237IN
2	W648	2.221	14.077	140.4	32.10	0001054IN
2	W649	1.550	13.194	111.2	83.94	000115SMH
2	W650	3.445	10.566	203.4	42.16	000110SMH
2	W651	1.627	14.493	94.8	21.57	0001059IN
2	W652	1.947	14.322	140.5	36.25	000955IN

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

Subwatershed	HydroID	Area (ac)	Basin Slope (%)	Width	Percent Impervious	Model Load Point
2	W653	7.789	12.745	323.0	12.57	0001060IN
2	W654	1.116	7.691	102.2	33.49	000227IN
2	W655	0.393	8.426	63.3	169.42	000107SMH
2	W656	3.580	10.412	214.3	23.80	0001061IN
2	W657	2.386	9.898	150.8	50.06	001088IN
2	W658	1.756	4.848	151.3	60.89	000225IN
2	W659	2.226	6.266	154.8	17.97	000148IN
2	W660	3.099	8.777	192.8	9.83	000349SMH
2	W661	0.227	3.692	68.0	400.96	0001063IN
2	W662	3.290	12.703	172.3	67.28	001015IN
2	W663	1.782	13.782	131.0	590.29	001012IN
2	W664	14.850	7.885	350.6	5.83	001014IN
2	W665	16.105	11.340	459.9	3.37	000257IN
2	W666	1.663	7.636	127.4	60.21	000249IN
2	W667	1.560	8.009	123.3	8.05	000254IN
2	W668	1.782	10.099	142.4	100.37	000238IN
2	W669	3.001	2.967	219.8	12.32	000256IN
2	W670	2.851	5.490	186.2	38.84	000980IN
2	W671	1.198	15.567	88.6	81.99	001002IN
2	W672	2.934	5.356	152.5	27.26	000987IN
2	W673	22.619	15.105	517.1	4.70	000361SMH
2	W674	5.795	5.394	317.8	18.81	000359SMH
2	W675	2.231	19.064	142.2	95.22	004168IN
2	W676	17.495	4.424	420.1	8.10	001413SMH
2	W677	0.744	13.880	88.3	202.62	004164IN
2	W678	0.888	5.315	121.3	35.93	004118IN
2	W679	1.978	11.567	181.4	282.36	004116IN
2	W680	3.724	8.018	176.5	8.70	000197SMH
2	W681	1.544	10.787	113.5	32.05	000291IO
2	W682	0.671	16.767	80.5	169.79	004160IN
2	W683	2.035	12.898	134.9	46.96	001409SMH
2	W684	0.795	7.385	71.0	95.18	004227IN
2	W685	1.296	9.606	97.1	42.14	001402SMH
2	W686	3.616	8.646	291.6	22.57	000034IO
2	W687	1.952	10.007	181.2	59.41	004151IN
2	W688	2.107	9.615	98.0	27.95	004113IN
2	W689	1.327	10.680	106.3	90.74	004220IN
2	W690	0.449	9.409	69.5	417.81	001420SMH
2	W691	0.682	9.760	92.4	830.30	004112IN
2	W692	3.130	10.346	234.0	30.21	000032IO
2	W693	1.836	3.903	173.4	154.89	004122IN
2	W694	14.473	8.371	412.8	11.56	001419SMH
2	W695	1.457	10.534	155.4	741.00	001399SMH

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
2	W696	2.934	13.443	175.6	41.69	004109IN
2	W697	0.997	5.688	88.4	1414.07	004224IN
2	W698	2.014	8.205	131.7	90.39	004120IN
2	W699	8.657	12.439	178.8	8.46	004197IN
2	W700	1.586	7.518	140.2	69.81	003882IN
2	W701	2.862	4.207	156.9	56.07	004199IN
2	W702	1.896	6.732	127.5	89.32	001423SMH
2	W703	3.698	3.702	173.3	10.37	000415IN
2	W704	2.056	3.019	155.6	50.21	000418IN
2	W705	1.033	3.189	121.7	118.09	004216IN
2	W706	2.257	13.012	116.4	51.34	004650IN
2	W707	1.763	4.135	131.9	42.29	004212IN
2	W708	7.624	11.691	215.9	5.39	001486SMH
2	W709	3.201	2.605	270.7	21.84	004213IN
2	W710	2.924	10.230	176.3	34.95	001493SMH
2	W711	1.348	7.979	130.7	174.99	004629IN
2	W712	0.909	1.965	83.7	213.83	005030IN
2	W713	5.248	3.492	229.5	10.91	003754IN
2	W714	1.049	1.815	98.0	3970.11	005029IN
2	W715	0.522	2.738	102.0	3415.89	001475SMH
2	W716	2.691	2.571	170.2	32.89	003759IN
2	W717	1.741	1.381	182.9	43.71	005028IN
2	W718	0.661	2.307	97.9	86.45	001474SMH
2	W719	3.435	4.771	204.3	8.31	004647IN
2	W720	2.485	13.099	154.7	10.79	004646IN
2	W721	0.801	6.266	135.8	44.34	004625IN
2	W722	1.142	2.874	142.9	31.93	004656IN
2	W723	0.630	13.169	55.9	149.86	004651IN
2	W724	1.124	9.645	138.3	74.43	001496SMH
2	W725	2.319	12.190	199.3	44.07	004657IN
2	W726	0.764	4.864	86.0	153.11	001484SMH
2	W727	1.080	6.165	128.3	57.27	004614IN
2	W728	3.461	5.526	166.6	51.95	004632IN
2	W729	1.405	3.298	158.9	83.02	004606IN
2	W730	0.346	3.232	65.4	114.32	004600IN
2	W731	4.819	6.254	229.7	16.28	001489SMH
2	W732	0.837	1.826	65.1	13.15	004598IN
2	W733	3.001	7.060	218.7	22.65	001483SMH
2	W734	3.869	5.381	156.3	13.34	000319IO
2	W735	3.502	1.937	237.2	38.02	003747IN
2	W736	3.497	3.352	161.9	32.12	004596IN
2	W737	0.966	3.169	93.5	10.13	003743IN
2	W738	1.338	3.784	111.4	15.56	003746IN

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

Subwatershed	HydroID	Area (ac)	Basin Slope (%)	Width	Percent Impervious	Model Load Point
2	W739	1.059	4.807	106.7	76.02	004645IN
2	W740	1.865	7.100	154.6	56.73	001201SMH
2	W741	2.252	4.761	141.6	113.09	004595IN
2	W742	9.587	1.888	373.8	6.90	003702IN
2	W743	1.426	3.926	111.7	138.48	004643IN
2	W744	1.694	3.190	164.9	10.10	004640IN
2	W745	0.434	2.800	76.0	114.37	001194SMH
2	W746	0.548	2.703	74.5	48.69	003748IN
2	W747	1.591	3.359	152.3	37.71	000253IO
2	W748	2.092	2.398	158.4	26.24	003699IN
2	W749	0.987	1.274	91.1	66.28	003750IN
2	W750	2.944	3.810	263.6	40.41	003738IN
2	W751	3.368	1.984	233.3	20.77	003730IN
2	W752	1.591	4.394	94.8	37.06	003736IN
2	W753	0.930	1.374	85.7	98.19	003705IN
2	W754	1.389	2.235	105.8	191.28	003708IN
2	W755	3.698	2.119	200.0	29.31	003733IN
2	W756	2.654	3.802	200.8	20.38	000359SMH
2	W757	1.291	15.271	110.0	128.10	000377SMH
2	W758	0.926	7.815	134.1	30.06	000959IN
2	W759	1.418	5.700	132.9	183.50	004148IN
2	W760	1.002	7.848	73.0	182.07	000398SMH
2	W761	0.616	11.115	141.1	212.89	001497SMH
3	W137	6.059	5.646	285.7	13.54	000145IN
3	W138	1.705	4.776	124.6	88.25	000147IN
3	W139	2.991	8.998	143.4	147.67	000021IO
3	W140	1.932	8.864	138.2	79.31	000020IO
3	W141	0.849	5.931	106.4	8.29	000173SMH
3	W142	1.201	10.431	136.0	130.49	000433IN
3	W143	3.048	6.487	132.4	42.80	000179SMH
3	W144	1.240	5.291	111.8	57.84	000440IN
3	W145	1.007	8.122	61.4	183.56	000432IN
3	W146	5.852	7.595	252.9	35.63	000429IN
3	W147	1.152	10.112	92.0	65.81	000434IN
3	W148	1.829	10.616	124.4	55.29	000402IN
3	W149	5.052	9.435	207.2	167.90	000164SMH
3	W150	0.728	7.754	85.8	263.75	000403IN
3	W151	10.165	9.626	317.5	33.73	000461IN
3	W152	3.895	5.543	176.8	35.46	000426IN
3	W153	1.451	4.542	104.5	150.84	000406IN
3	W154	2.320	3.047	176.3	34.65	000412IN
3	W155	4.224	1.454	251.6	33.45	000035IO
3	W156	0.963	9.986	120.2	91.32	000180SMH

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

Subwatershed	HydroID	Area (ac)	Basin Slope (%)	Width	Percent Impervious	Model Load Point
3	W157	3.967	10.469	399.3	114.95	004187IN
3	W200	4.971	4.335	289.9	45.62	000477IN
3	W201	1.912	4.414	227.6	32.50	000143SMH
3	W202	3.337	7.177	169.6	51.09	000171SMH
3	W203	3.104	7.878	206.9	6.91	000476IN
3	W204	1.622	4.050	109.6	32.09	000138SMH
3	W205	2.185	5.537	93.1	58.59	000336IN
3	W206	0.940	2.506	124.9	46.45	000335IN
3	W207	3.409	9.517	187.8	3.13	000383IN
3	W208	2.184	5.375	177.4	43.12	000395IN
3	W209	1.229	10.654	127.6	154.44	000386IN
3	W210	0.878	4.456	107.1	57.06	000147SMH
3	W211	1.074	4.163	73.9	66.40	000332IN
3	W212	0.460	1.926	86.5	121.58	000185SMH
3	W213	2.226	7.465	145.0	48.52	000150SMH
3	W214	0.863	2.785	128.0	1328.32	000134SMH
3	W215	4.410	1.000	249.0	89.00	000191SMH
3	W216	1.612	8.528	111.3	608.64	000069ND
3	W217	0.775	4.753	100.1	36.93	000132SMH
3	W218	0.563	5.841	83.1	154.65	000131SMH
3	W219	3.378	8.734	212.8	13.83	000379IN
3	W220	3.786	3.843	144.4	9.61	000130SMH
3	W221	1.379	7.285	93.2	80.46	000127SMH
3	W222	0.708	7.750	83.9	54.88	000122SMH
3	W223	1.126	5.299	98.8	159.51	000125SMH
3	W224	2.056	8.095	148.1	109.49	000065ND
3	W225	3.094	6.394	209.9	50.13	000453IN
3	W226	0.702	7.747	109.6	38.19	000119SMH
3	W227	1.307	5.162	135.8	6.34	000392IN
3	W228	5.320	5.966	69.0	10.04	000117SMH
3	W230	4.329	3.698	264.6	31.42	000391IN
3	W232	5.976	1.759	296.6	11.82	003761IN
3	W233	1.327	2.046	113.4	103.16	000484IN
3	W234	3.874	2.735	240.0	21.76	003760IN
3	W235	2.093	5.166	113.4	31.85	000162SMH
3	W236	0.643	5.801	97.9	77.18	000181SMH
3	W237	0.777	1.511	124.9	87.39	000139SMH
3	W238	1.327	2.889	203.2	36.17	000330IN
3	W239	1.733	4.909	106.7	76.45	000352IN
4	W4054	0.501	10.558	76.4	132.58	000454IO
4	W4055	0.735	3.601	115.8	16.52	008776IN
4	W4056	1.126	4.873	109.6	81.25	008772IN
4	W4057	0.811	2.861	99.8	53.02	000455IO

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
4	W4058	1.247	11.592	225.1	235.57	008774IN
4	W4059	1.136	2.114	91.6	103.23	007402IN
4	W4060	2.076	2.308	102.0	68.55	002813SMH
4	W4061	1.322	2.660	131.5	112.33	007385IN
4	W4062	2.071	1.455	120.3	106.40	008771IN
4	W4063	0.749	3.823	82.2	185.05	008773IN
4	W4064	0.832	3.315	116.2	44.67	007383IN
4	W4065	0.687	5.641	104.9	74.59	002815SMH
4	W4066	0.930	4.475	91.0	83.79	007409IN
4	W4067	2.515	11.261	125.9	52.59	007387IN
4	W4068	3.270	7.365	158.5	30.06	002845SMH
4	W4069	1.028	10.125	87.0	105.82	002227SMH
4	W4070	2.215	7.020	159.1	16.41	002807SMH
4	W4071	0.832	7.523	108.6	144.30	008765IN
4	W4072	0.687	6.114	83.2	131.01	008777IN
4	W4073	1.911	10.846	135.1	62.79	002773SMH
4	W4074	3.895	14.753	147.1	46.22	007381IN
4	W4075	2.774	8.341	136.7	28.07	002805SMH
4	W4076	1.498	8.687	155.4	79.52	008770IN
4	W4077	1.142	5.313	125.9	54.92	002064SMH
4	W4078	1.446	13.106	101.1	118.45	008758IN
4	W4079	2.133	13.216	172.7	35.59	008778IN
4	W4080	1.973	9.742	117.9	92.53	002816SMH
4	W4081	2.515	14.884	135.6	41.69	002840SMH
4	W4082	1.823	5.735	198.5	33.35	002063SMH
4	W4083	4.850	14.353	255.5	16.40	002323SMH
4	W4084	1.198	11.306	92.4	123.90	002839SMH
4	W4085	1.854	14.997	152.0	34.66	008867IN
4	W4086	1.684	10.621	120.6	7.89	008767IN
4	W4087	0.992	11.446	107.8	53.28	001312ND
4	W4088	2.490	15.018	173.8	58.11	002817SMH
4	W4089	2.273	11.891	172.2	88.39	002286SMH
4	W4090	0.542	6.179	88.4	133.59	002282SMH
4	W4091	1.958	8.120	142.5	28.16	002281SMH
4	W4092	3.350	12.139	216.3	41.84	008795IN
4	W4093	2.268	13.849	144.3	44.48	001106ND
4	W4094	2.660	9.364	178.0	30.92	008812IN
4	W4095	1.457	22.589	130.7	95.53	002784SMH
4	W4096	3.161	13.057	151.3	31.30	008796IN
4	W4097	1.699	10.663	133.0	157.62	002290SMH
4	W4098	3.337	16.448	215.9	26.91	002818SMH
4	W4099	1.193	5.483	127.1	47.68	002307SMH
4	W4100	2.386	16.197	175.7	52.03	000344CB

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
4	W4101	1.049	8.279	107.7	19.88	002306SMH
4	W4102	1.689	14.416	99.4	31.24	007048IN
4	W4103	2.608	20.964	163.4	68.82	002267SMH
4	W4104	2.500	13.600	164.0	41.28	008814IN
4	W4105	1.803	14.486	122.8	74.25	002271SMH
4	W4106	1.296	14.405	125.4	118.07	007044IN
4	W4107	3.109	15.835	356.4	13.88	002258SMH
4	W4108	6.121	8.906	197.8	14.64	008813IN
4	W4109	1.488	21.930	141.1	48.98	005033IN
4	W4110	1.209	22.498	116.3	87.28	002274SMH
4	W4111	2.887	15.653	181.5	10.43	002244SMH
4	W4112	2.526	7.520	141.5	19.64	002767SMH
4	W4113	1.379	10.294	101.2	290.42	002769SMH
4	W4114	3.853	14.988	197.1	18.09	000390ND
4	W4115	1.105	15.995	99.0	167.56	008484IN
4	W4116	1.508	6.603	138.7	23.84	008489IN
4	W4117	4.272	9.954	170.0	10.19	002277SMH
4	W4118	4.034	15.566	202.1	14.64	007051IN
4	W4119	0.894	6.076	119.4	30.50	008485IN
4	W4120	1.193	5.760	124.6	103.94	002856SMH
4	W4121	0.837	5.959	74.0	169.04	008913IN
4	W4122	4.010	5.100	316.0	39.00	005039IN
4	W4123	2.433	12.269	206.2	30.69	007057IN
4	W4124	0.785	5.258	113.3	79.71	007040IN
4	W4125	2.016	6.445	147.3	30.03	007034IN
4	W4126	2.681	10.542	144.2	9.54	002278SMH
4	W4127	1.715	9.408	141.0	42.05	002245SMH
4	W4128	3.631	4.378	129.6	25.43	008915IN
4	W4129	9.995	3.858	342.5	9.90	002858SMH
4	W4130	2.779	5.203	164.1	31.33	002864SMH
4	W4133	2.128	13.541	139.0	53.15	002247SMH
4	W4134	2.485	10.717	152.8	24.19	008505IN
4	W4135	1.111	8.208	116.0	103.52	001418ND
4	W4136	1.307	5.575	147.8	93.88	008933IN
4	W4137	4.416	9.417	164.0	7.84	008492IN
4	W4138	2.009	0.762	131.9	89.19	002866SMH
4	W4139	0.780	2.425	96.7	140.11	002867SMH
4	W4140	0.718	10.149	90.3	156.80	002145SMH
4	W4141	1.978	10.676	161.2	41.69	001251ND
4	W4142	2.118	4.317	170.6	80.18	008930IN
4	W4143	2.273	7.850	151.1	40.05	002146SMH
4	W4144	1.405	8.790	125.3	304.44	002143SMH
4	W4145	2.009	5.956	229.7	117.64	002873SMH

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

Subwatershed	HydroID	Area (ac)	Basin Slope (%)	Width	Percent Impervious	Model Load Point
4	W4146	3.017	2.736	142.1	27.65	002871SMH
4	W4147	2.087	4.387	144.4	39.73	002139SMH
4	W4148	0.764	5.648	91.8	348.58	008382IN
4	W4149	1.792	4.270	122.6	81.69	002140SMH
4	W4150	1.643	4.200	92.2	48.13	008386IN
4	W4151	2.242	4.529	182.8	27.67	002136SMH
4	W4152	2.366	6.749	230.2	31.40	000368CB
4	W4153	3.254	5.635	117.2	85.86	007454IN
4	W4154	0.496	5.514	123.5	363.53	007379IN
4	W4155	2.763	11.177	159.1	77.82	008790IN
4	W4156	2.175	5.753	165.9	92.76	008896IN
4	W4157	2.048	10.641	164.8	19.82	008800IN
4	W4158	1.240	4.381	126.8	111.11	008784IN
4	W4159	1.457	6.637	115.3	45.37	002782SMH
4	W4160	1.477	6.848	140.0	73.89	005032IN
4	W4161	1.098	8.745	200.9	88.34	002770SMH
4	W4162	1.429	4.906	132.3	56.42	002255SMH
4	W4163	2.454	9.255	224.9	26.57	002257SMH
5	W4577	0.616	15.096	91.5	173.58	007443IN
5	W4578	1.911	7.359	92.2	35.49	007437IN
5	W4579	2.929	7.000	147.3	22.62	002821SMH
5	W4580	0.501	2.263	80.7	165.95	001383ND
5	W4581	0.904	5.999	78.0	96.92	007433IN
5	W4582	3.239	4.129	136.6	21.75	007418IN
5	W4583	1.095	7.606	122.0	56.06	007432IN
5	W4584	2.293	5.386	136.6	19.28	007417IN
5	W4585	1.632	5.180	110.7	23.81	002826SMH
5	W4586	1.736	6.489	135.1	42.49	007429IN
5	W4587	4.330	4.957	244.8	6.95	007427IN
5	W4588	2.200	5.242	108.9	45.44	007457IN
5	W4589	1.999	7.333	102.6	12.81	002311SMH
5	W4590	2.175	14.000	162.8	42.92	008836IN
5	W4591	1.730	12.937	132.3	21.83	002317SMH
5	W4592	1.348	12.204	124.4	109.97	008872IN
5	W4593	5.661	12.409	223.1	9.52	000350CB
5	W4594	0.904	9.640	106.5	11.67	008888IN
5	W4595	1.358	10.893	118.0	38.16	008890IN
5	W4596	3.042	12.055	219.4	22.57	008877IN
5	W4597	2.691	10.111	140.5	73.90	008875IN
5	W4598	3.760	9.245	270.1	46.02	002319SMH
5	W4599	6.534	5.528	247.7	57.55	006983IN
5	W4600	1.554	5.819	182.7	124.08	007435IN
5	W4601	0.126	10.131	43.3	4236.62	007442IN

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

Subwatershed	HydroID	Area (ac)	Basin Slope (%)	Width	Percent Impervious	Model Load Point
5	W4602	2.127	8.017	160.4	45.47	008871IN
6	W7903	1.689	2.613	162.5	75.22	000421IO
6	W7904	2.040	1.139	211.4	54.43	002092SMH
6	W7905	1.727	1.333	142.1	27.04	002079SMH
6	W7906	0.777	1.094	97.0	112.38	008459IN
6	W7907	3.151	2.058	571.2	16.79	000307CB
6	W7908	1.896	1.350	153.7	36.75	002074SMH
6	W7909	2.583	3.099	142.1	17.09	002067SMH
6	W7910	0.723	1.005	109.4	146.45	008389IN
6	W7911	2.308	2.506	121.7	49.57	008439IN
6	W7912	3.562	2.125	220.8	49.18	002085SMH
6	W7913	0.904	4.513	110.2	106.34	008423IN
6	W7914	3.430	1.966	197.4	28.42	002078SMH
6	W7915	8.673	6.614	248.7	17.40	002828SMH
6	W7916	1.906	4.659	127.4	25.81	002094SMH
6	W7917	0.795	2.408	179.8	85.45	008455IN
6	W7918	8.668	4.377	310.0	4.53	008451IN
6	W7919	2.068	4.543	169.0	34.89	002072SMH
6	W7920	1.441	5.744	119.8	17.60	002071SMH
6	W7921	1.612	1.720	115.6	17.82	002086SMH
6	W7922	0.852	1.772	77.9	78.51	008469IN
6	W7923	1.074	2.171	106.7	42.86	008480IN
6	W7924	2.092	4.504	120.2	45.04	008406IN
6	W7925	1.043	5.813	96.4	64.35	008440IN
6	W7929	3.264	5.071	179.4	60.36	008464IN
6	W7930	3.791	4.148	175.1	29.00	008409IN
6	W7931	2.970	6.677	124.7	31.80	007394IN
6	W7934	0.744	4.094	95.2	82.48	008427IN
6	W7935	1.291	2.737	114.6	46.54	008405IN
6	W7939	1.147	5.537	126.8	26.74	007375IN
6	W7945	0.651	2.250	82.1	118.18	008442IN
6	W7946	1.596	5.095	207.8	40.48	008445IN
6	W7949	2.841	13.017	128.4	22.16	000348CB
6	W7951	6.248	14.254	346.7	4.28	006908IN
6	W7952	2.285	8.594	134.7	14.39	008810IN
6	W7966	2.779	8.324	154.7	22.71	002777SMH
6	W7970	1.844	17.458	136.7	14.29	002778SMH
6	W7976	4.530	20.656	272.3	8.88	002231SMH
6	W7977	6.420	17.842	232.6	14.12	006912IN
6	W7978	2.340	7.526	153.4	11.39	000211CB
6	W7979	1.374	23.421	127.5	57.04	006981IN
6	W7985	2.314	2.131	217.1	38.15	006989IN
6	W7988	0.666	7.582	89.1	172.00	006969IN

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

Subwatershed	HydroID	Area (ac)	Basin Slope (%)	Width	Percent Impervious	Model Load Point
6	W7996	2.526	4.710	160.2	50.21	006961IN
6	W8000	0.764	13.870	90.1	87.17	002785SMH
6	W8001	4.819	20.941	256.6	22.10	000187CB
6	W8002	3.001	10.387	172.3	12.64	002804SMH
6	W8006	3.667	4.519	189.2	20.30	000205CB
6	W8007	2.412	8.139	165.9	31.50	002241SMH
6	W8016	3.063	10.085	157.2	27.56	002237SMH
6	W8020	2.490	16.386	153.7	117.63	000189CB
6	W8023	2.231	15.240	137.7	73.15	002233SMH
6	W8028	10.041	8.416	289.2	37.57	000200CB
6	W8033	4.468	13.270	180.7	8.85	002235SMH
6	W8034	3.161	13.888	164.0	30.55	002236SMH
6	W8037	2.014	10.814	147.4	87.74	000195CB
6	W8039	7.474	9.194	274.4	7.43	006948IN
6	W8050	1.286	16.382	125.5	200.05	002790SMH
6	W8062	0.852	13.984	107.7	156.12	002789SMH
6	W8063	3.368	7.629	182.3	20.67	006999IN
6	W8072	7.970	5.700	260.0	33.00	000224CB
6	W8073	1.550	6.100	147.0	65.58	002788SMH
6	W8086	1.012	4.547	77.2	68.36	000316CB
6	W8090	2.924	8.171	133.7	42.65	007031IN
6	W8095	4.168	8.310	223.1	16.23	002135SMH
6	W8231	1.986	5.688	216.8	40.14	002096SMH
6	W8232	0.902	2.531	849.4	47.42	008419IN
6	W8233	1.762	2.515	2046.3	30.63	008415IN
6	W8236	1.033	5.607	162.0	88.56	008416IN
6	W8237	1.568	5.092	140.3	61.44	002068SMH
7	W7902	4.530	2.602	206.9	11.44	006895IN
7	W7927	0.579	1.532	90.6	258.48	002087SMH
7	W7928	2.562	1.631	151.6	13.43	006868IN
7	W7932	2.335	1.607	138.5	23.34	008482IN
7	W7933	1.904	1.921	144.4	16.59	006861IN
7	W7936	2.773	4.016	217.9	9.29	007091IN
7	W7937	0.981	9.015	121.3	46.06	002304SMH
7	W7938	2.211	4.676	165.6	21.60	002294SMH
7	W7940	3.115	3.048	120.9	31.43	006874IN
7	W7941	1.720	1.610	161.6	10.09	001856SMH
7	W7942	0.868	1.910	105.2	98.27	006900IN
7	W7943	1.643	3.387	178.7	45.46	001785SMH
7	W7944	2.035	2.241	152.1	63.91	007094IN
7	W7947	4.529	2.380	190.4	14.08	007093IN
7	W7948	1.901	1.374	239.9	23.59	006906IN
7	W7950	3.796	7.139	144.2	17.92	002099SMH

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
7	W7953	0.981	2.187	115.0	82.62	006907IN
7	W7954	1.601	2.424	277.3	30.53	001855SMH
7	W7955	1.100	5.806	96.7	67.36	008747IN
7	W7956	0.542	4.293	111.0	314.76	007171IN
7	W7957	1.321	3.162	161.4	57.20	002090SMH
7	W7958	0.940	1.557	142.2	125.98	000425IO
7	W7959	0.320	4.110	64.7	177.52	007086IN
7	W7960	0.408	6.876	50.6	178.10	007163IN
7	W7961	2.087	7.622	87.1	54.18	007166IN
7	W7962	1.131	3.568	110.7	100.99	000331CB
7	W7963	1.495	3.055	96.4	399.35	008508IN
7	W7964	1.105	5.038	96.6	214.54	008724IN
7	W7965	9.122	2.427	618.7	16.61	002666SMH
7	W7967	1.116	3.745	117.2	228.46	002209SMH
7	W7968	1.462	8.756	117.1	64.21	007167IN
7	W7969	1.777	2.666	176.3	37.13	007082IN
7	W7971	1.038	7.511	112.6	47.61	000440IO
7	W7972	2.304	2.796	221.1	15.26	008509IN
7	W7973	2.469	5.725	167.1	43.59	001361ND
7	W7974	0.950	7.307	116.6	118.81	002210SMH
7	W7975	0.987	5.737	59.1	31.07	008725IN
7	W7980	3.161	9.679	163.0	5.76	002220SMH
7	W7981	1.601	9.365	141.0	53.49	007148IN
7	W7982	1.028	8.604	81.3	57.70	002745SMH
7	W7983	3.773	1.946	249.3	8.24	007118IN
7	W7984	2.030	4.586	130.0	29.11	002218SMH
7	W7986	4.157	2.082	233.5	31.60	007110IN
7	W7987	2.362	6.334	241.1	34.32	001854SMH
7	W7989	2.164	10.429	167.6	18.38	008623IN
7	W7990	2.588	2.994	134.8	18.28	007111IN
7	W7991	5.103	3.790	223.3	4.45	001851SMH
7	W7992	0.733	0.901	103.4	296.76	007081IN
7	W7993	1.204	3.783	114.1	63.07	007063IN
7	W7994	0.914	4.284	123.1	1.85	001806SMH
7	W7995	1.525	3.631	111.9	30.32	006426IN
7	W7997	1.715	6.699	157.4	28.43	001793SMH
7	W7998	2.743	6.596	192.7	52.74	003548SMH
7	W7999	2.097	15.000	133.9	26.97	008750IN
7	W8003	1.426	0.982	170.6	48.05	002152SMH
7	W8004	0.723	6.096	147.4	102.47	007145IN
7	W8005	2.670	13.927	133.6	9.62	002742SMH
7	W8008	1.322	0.686	170.7	196.63	002153SMH
7	W8009	1.808	9.461	144.3	103.85	008713IN

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

Subwatershed	HydroID	Area (ac)	Basin Slope (%)	Width	Percent Impervious	Model Load Point
7	W8010	0.987	3.016	103.0	126.58	007078IN
7	W8011	1.901	20.310	160.9	40.29	000327CB
7	W8012	0.894	5.864	113.7	115.20	002212SMH
7	W8013	1.400	1.130	147.2	22.77	002162SMH
7	W8014	3.177	4.736	177.4	22.29	002216SMH
7	W8015	2.608	8.832	144.4	52.33	002184SMH
7	W8017	0.811	12.222	63.4	102.41	002740SMH
7	W8018	1.477	4.152	145.2	59.50	008681IN
7	W8019	1.839	4.220	225.9	411.55	006430IN
7	W8021	1.637	5.739	144.6	29.78	002168SMH
7	W8022	0.640	1.906	94.9	195.78	002166SMH
7	W8024	2.696	3.170	171.8	32.91	001790SMH
7	W8025	2.515	12.108	213.0	19.47	002720SMH
7	W8026	1.854	4.777	138.2	44.43	002198SMH
7	W8027	2.330	5.342	135.9	17.27	008529IN
7	W8029	2.710	21.144	164.3	42.68	002754SMH
7	W8030	1.774	11.609	141.0	68.61	002734SMH
7	W8031	0.408	11.785	84.5	225.78	008607IN
7	W8032	3.456	14.360	192.6	54.35	002204SMH
7	W8035	1.524	1.256	104.5	24.96	002163SMH
7	W8036	2.237	2.734	166.9	75.28	008527IN
7	W8038	2.128	5.959	150.8	34.19	002197SMH
7	W8040	1.836	14.888	212.2	68.62	000324CB
7	W8041	2.045	11.591	201.8	78.22	002182SMH
7	W8042	2.934	2.746	136.6	132.93	007361IN
7	W8043	3.998	3.955	161.0	175.09	002194SMH
7	W8044	1.240	12.405	141.7	13.00	002726SMH
7	W8045	2.392	7.802	119.0	11.54	002724SMH
7	W8046	4.287	7.804	169.2	37.64	000323CB
7	W8047	2.918	7.394	300.2	57.30	000231CB
7	W8048	2.324	3.016	215.7	118.76	000088CB
7	W8049	0.935	2.996	103.4	50.56	000087CB
7	W8051	0.899	4.052	109.4	138.82	001835SMH
7	W8052	2.071	20.371	147.1	52.05	002732SMH
7	W8053	2.872	21.343	1551.0	15.28	002799SMH
7	W8054	0.857	14.966	76.5	59.14	002737SMH
7	W8055	0.878	10.861	95.8	132.36	008741IN
7	W8056	0.914	3.909	89.5	31.25	008515IN
7	W8057	0.801	12.698	88.1	60.98	008591IN
7	W8058	1.431	10.008	104.4	114.62	002180SMH
7	W8059	1.467	2.697	117.2	65.37	001350ND
7	W8060	0.661	0.794	91.5	315.94	008517IN
7	W8061	2.014	3.328	135.5	73.62	006416IN

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
7	W8064	2.504	22.428	269.1	24.51	002795SMH
7	W8065	2.841	13.531	149.0	43.83	002791SMH
7	W8066	8.595	5.145	386.7	5.66	002191SMH
7	W8067	0.713	4.121	83.4	86.91	006418IN
7	W8068	1.338	4.901	105.0	125.69	002186SMH
7	W8069	2.045	10.714	163.5	49.64	002176SMH
7	W8070	0.919	6.109	88.8	50.91	006443IN
7	W8071	1.885	4.032	170.6	66.27	001831SMH
7	W8074	3.450	7.508	180.7	16.14	002223SMH
7	W8075	1.405	3.969	145.6	17.11	001789SMH
7	W8076	1.989	8.202	145.3	13.34	007337IN
7	W8077	4.850	13.454	241.7	20.53	002202SMH
7	W8078	2.226	10.200	166.3	23.22	002175SMH
7	W8079	2.882	15.554	151.8	43.67	008702IN
7	W8080	0.956	3.242	123.9	51.27	002756SMH
7	W8081	12.982	17.998	448.5	1.88	000442IO
7	W8082	2.278	3.115	125.4	58.14	006409IN
7	W8083	1.947	17.298	143.1	56.49	006692IN
7	W8084	4.902	13.427	222.0	12.71	001953SMH
7	W8085	0.232	0.832	50.6	508.82	001829SMH
7	W8087	0.408	8.254	79.1	86.31	002174SMH
7	W8088	4.442	4.608	230.7	28.54	006442IN
7	W8089	1.343	4.303	99.3	173.52	001828SMH
7	W8091	0.919	5.461	104.0	420.29	006410IN
7	W8092	2.145	2.932	133.9	58.37	006352IN
7	W8093	1.865	11.552	160.8	40.00	002759SMH
7	W8094	4.535	4.875	238.3	39.36	002757SMH
7	W8096	2.061	6.234	164.3	39.76	002171SMH
7	W8097	1.147	5.331	109.2	177.94	006351IN
7	W8098	1.792	6.271	193.4	93.80	002033SMH
7	W8099	1.963	5.634	126.9	118.87	008548IN
7	W8100	1.317	25.213	110.3	50.81	008331IN
7	W8101	1.720	3.803	150.3	13.14	001816SMH
7	W8102	3.998	9.088	200.0	3.17	002058SMH
7	W8103	4.096	14.103	225.7	159.52	006691IN
7	W8104	1.157	3.849	110.4	74.75	001874SMH
7	W8105	1.513	5.139	119.4	68.11	001877SMH
7	W8106	1.018	16.823	71.5	92.10	008333IN
7	W8107	2.577	8.425	161.8	36.20	002708SMH
7	W8108	2.361	2.823	126.0	17.48	002706SMH
7	W8109	6.627	3.427	211.1	2.31	008316IN
7	W8110	1.131	15.380	82.0	48.67	000252CB
7	W8111	3.135	11.718	163.9	26.14	000251CB

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

Subwatershed	HydroID	Area (ac)	Basin Slope (%)	Width	Percent Impervious	Model Load Point
7	W8112	2.480	7.193	145.1	23.37	002133SMH
7	W8113	1.782	9.626	182.2	32.41	006762IN
7	W8114	2.603	14.531	167.2	19.33	002040SMH
7	W8115	0.863	2.924	83.4	59.43	001873SMH
7	W8116	1.183	4.003	74.9	87.69	001813SMH
7	W8117	2.949	3.906	189.2	3.44	006296IN
7	W8118	1.260	13.364	152.8	47.87	006686IN
7	W8119	2.944	7.979	160.0	101.29	002032SMH
7	W8120	1.085	10.606	95.4	120.42	006688IN
7	W8121	2.371	6.620	161.8	96.48	002682SMH
7	W8122	1.529	14.090	101.5	107.68	008323IN
7	W8123	1.555	7.817	126.3	134.33	002685SMH
7	W8124	1.147	12.207	102.7	26.50	008348IN
7	W8125	4.029	10.554	128.2	16.29	000248CB
7	W8126	1.942	5.538	140.1	28.53	002696SMH
7	W8127	4.168	3.056	241.5	7.28	001867SMH
7	W8128	1.829	9.440	143.0	52.71	002128SMH
7	W8129	2.510	2.610	184.9	25.70	001868SMH
7	W8130	2.521	4.860	166.7	11.56	006847IN
7	W8131	0.754	3.932	73.7	28.28	002132SMH
7	W8132	1.446	8.133	137.5	113.48	002109SMH
7	W8133	2.471	2.136	153.3	77.74	006288IN
7	W8134	1.679	9.755	128.1	25.71	008361IN
7	W8135	1.219	11.182	102.4	15.13	002102SMH
7	W8136	2.407	2.700	151.3	28.29	006806IN
7	W8137	3.079	10.015	150.1	16.92	001229ND
7	W8138	2.665	12.293	170.1	17.64	002104SMH
7	W8139	2.872	9.721	149.4	21.31	008351IN
7	W8140	1.782	6.569	139.7	65.21	002703SMH
7	W8141	1.240	13.903	134.9	60.57	008317IN
7	W8142	1.369	9.435	144.0	15.96	002681SMH
7	W8143	0.935	9.575	90.2	245.30	006715IN
7	W8144	1.395	12.483	136.1	232.22	006853IN
7	W8145	1.978	4.065	147.1	218.86	001800SMH
7	W8146	3.094	3.607	253.3	56.09	006310IN
7	W8147	2.433	7.890	128.7	45.01	002110SMH
7	W8148	2.546	8.068	171.5	35.50	002677SMH
7	W8149	1.637	12.791	126.6	94.88	002036SMH
7	W8150	1.756	8.658	108.1	108.82	002125SMH
7	W8151	1.606	8.785	125.0	7.84	001115ND
7	W8152	1.994	11.284	151.2	30.88	002714SMH
7	W8153	1.498	2.394	162.1	130.30	002052SMH
7	W8154	1.136	9.616	166.9	193.64	002122SMH

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
7	W8155	2.929	9.259	182.4	88.74	002680SMH
7	W8156	3.180	1.000	139.0	56.00	006848IN
7	W8157	0.739	9.307	89.3	79.17	002112SMH
7	W8158	3.900	3.106	167.2	5.61	006747IN
7	W8159	1.049	3.490	101.8	43.84	002050SMH
7	W8160	0.677	5.102	86.3	72.11	006846IN
7	W8161	1.162	8.775	96.5	39.14	006827IN
7	W8162	1.436	8.983	107.9	81.28	002113SMH
7	W8163	2.376	4.322	184.0	27.89	006309IN
7	W8164	1.296	3.525	97.2	72.64	006313IN
7	W8165	1.534	3.632	107.2	19.43	006314IN
7	W8166	0.367	4.916	68.4	197.45	006792IN
7	W8167	0.671	2.095	94.5	58.67	006744IN
7	W8168	1.684	3.537	92.9	52.67	006746IN
7	W8169	9.118	1.311	436.1	9.10	006333IN
7	W8170	1.508	8.073	94.5	203.48	002698SMH
7	W8171	0.878	6.397	66.5	166.58	000240CB
7	W8172	1.240	5.874	143.7	27.06	002116SMH
7	W8173	14.762	4.231	443.7	3.69	002114SMH
7	W8174	2.665	8.343	112.1	17.43	000239CB
7	W8175	2.268	1.659	122.7	19.75	001957SMH
7	W8176	0.770	2.672	95.6	173.16	001960SMH
7	W8177	2.738	3.866	138.9	23.23	006828IN
7	W8178	2.567	10.021	138.4	17.01	006564IN
7	W8179	5.170	6.724	197.3	8.91	006563IN
7	W8180	3.729	10.505	130.2	113.66	006697IN
7	W8181	3.321	10.124	222.2	12.29	002678SMH
7	W8182	1.043	3.057	95.0	46.23	006843IN
7	W8183	1.881	2.737	161.2	108.42	006326IN
7	W8184	3.476	1.867	159.5	18.57	002117SMH
7	W8185	2.676	12.213	138.2	23.80	001954SMH
7	W8186	1.353	2.157	109.6	122.97	006778IN
7	W8187	0.258	1.964	74.1	52.65	002046SMH
7	W8188	1.410	1.315	129.0	35.46	000263CB
7	W8189	2.330	2.365	232.8	34.77	000282CB
7	W8190	1.426	4.451	90.2	102.21	006696IN
7	W8191	1.224	2.197	122.6	79.04	002034SMH
7	W8192	1.999	3.450	179.9	34.27	006742IN
7	W8193	1.596	6.650	115.7	92.47	006700IN
7	W8194	1.854	1.132	146.0	30.85	006323IN
7	W8195	3.709	1.423	168.3	13.74	006319IN
7	W8196	6.059	9.243	169.2	22.55	006701IN
7	W8197	1.761	2.111	129.4	96.48	006704IN

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
7	W8198	1.596	2.409	184.2	74.14	000262CB
7	W8199	0.899	1.466	123.4	41.92	006779IN
7	W8200	1.983	2.311	158.8	6.85	006773IN
7	W8201	0.883	1.696	100.4	75.72	006770IN
7	W8202	1.694	1.352	111.3	39.68	001994SMH
7	W8203	1.100	2.676	124.6	172.48	002044SMH
7	W8204	1.730	2.251	147.4	67.97	006670IN
7	W8205	3.027	11.423	127.9	25.38	006665IN
7	W8206	1.183	1.992	127.0	77.15	000242CB
7	W8207	3.037	10.412	119.3	16.84	000236CB
7	W8208	2.800	1.242	213.2	18.51	002005SMH
7	W8209	2.840	0.700	201.0	41.00	001993SMH
7	W8210	2.681	1.584	174.7	20.64	006629IN
7	W8211	1.684	2.011	178.2	12.10	000181CB
7	W8212	1.121	2.632	113.0	46.56	006663IN
7	W8213	0.754	0.194	123.2	60.77	006614IN
7	W8214	0.429	0.405	84.7	221.28	006611IN
7	W8215	6.074	11.857	179.9	11.08	006657IN
7	W8216	2.040	0.200	157.0	42.00	006609IN
7	W8217	0.744	1.522	105.2	58.75	001996SMH
7	W8218	2.490	1.955	309.9	21.92	001995SMH
7	W8219	0.620	0.200	123.0	47.00	006607IN
7	W8220	2.056	0.816	176.2	19.30	006622IN
7	W8221	2.900	1.600	156.0	41.00	000180CB
7	W8222	4.726	12.021	156.6	27.43	000169CB
7	W8223	1.472	1.560	131.5	69.03	002008SMH
7	W8224	1.849	0.825	193.1	48.42	006599IN
7	W8225	2.048	3.811	116.0	23.60	000159CB
7	W8226	1.360	1.700	90.0	44.00	001989SMH
7	W8227	1.730	0.300	240.0	47.00	000161CB
7	W8228	0.250	0.200	46.0	45.00	006608IN
7	W8229	1.100	0.100	131.0	69.00	001979SMH
7	W8230	4.080	0.300	330.0	62.00	001980SMH
7	W8234	2.347	2.328	171.3	30.06	006870IN
7	W8235	0.764	4.355	141.3	278.42	002298SMH
7	W8238	1.131	12.306	154.8	119.20	008343IN
7	W8239	2.169	8.387	200.0	124.06	008372IN
7	W8240	1.258	4.211	85.9	241.77	006438IN
7	W8241	1.218	3.018	199.7	74.21	001809SMH
7	W8242	1.498	10.737	89.0	90.68	007149IN
7	W8243	0.723	9.625	56.1	136.98	000326CB
7	W8244	0.974	12.622	62.1	48.60	002733SMH
7	W8245	1.849	14.710	137.6	52.85	002794SMH

TABLE 2

**Hydrologic Parameters for Four Mile Run Catchments**

Subwatershed	HydroID	Area (ac)	Basin Slope (%)	Width	Percent Impervious	Model Load Point
7	W8246	0.635	5.436	87.6	183.02	007328IN
7	W8247	1.524	2.825	357.1	46.51	006896IN

Note: HydroID is a unique identifier created by ArcHydro

**Attachment C**  
**Inlet Capacity Results**

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TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
1	000011IO	10.795	5	16.3	36.9	Insufficient
1	000079IO	7.195	0	0.0	31.9	Insufficient
1	000081IO	1.629	2	6.5	8.0	Insufficient
1	000083IO	2.443	3	9.8	10.6	Insufficient
1	0001048IN	2.614	3	9.8	15.0	Insufficient
1	000114IO	5.077	0	0.0	12.3	Insufficient
1	000115IO	3.704	0	0.0	12.2	Insufficient
1	000191ND	24.241	0	0.0	99.6	Insufficient
1	000316SMH	2.135	3	9.8	10.6	Insufficient
1	000319SMH	17.996	1	3.3	46.4	Insufficient
1	000320SMH	2.195	8	26.0	10.0	
1	000321SMH	2.154	3	9.8	10.1	Insufficient
1	000322SMH	4.478	13	42.3	21.0	
1	000323SMH	4.292	1	3.3	16.3	Insufficient
1	000328SMH	1.689	2	6.5	9.2	Insufficient
1	000365SMH	24.845	6	19.5	100.5	Insufficient
1	000369SMH	0.817	0	0.0	4.8	Insufficient
1	000372SMH	2.087	4	13.0	10.7	
1	000374SMH	2.118	3	9.8	11.4	Insufficient
1	000389SMH	0.940	2	6.5	5.4	
1	000390SMH	3.822	0	0.0	19.5	Insufficient
1	000392SMH	75.956	3	9.8	250.7	Insufficient
1	000394SMH	29.458	6	19.5	122.7	Insufficient
1	000552SMH	3.368	5	16.3	16.5	Insufficient
1	000554SMH	0.476	2	6.5	2.0	
1	000556SMH	1.710	1	3.3	6.5	Insufficient
1	000559SMH	0.626	2	6.5	2.9	
1	000560SMH	4.311	1	3.3	8.0	Insufficient
1	000561SMH	1.158	1	3.3	5.7	Insufficient
1	000562SMH	1.663	3	9.8	6.6	
1	000564SMH	2.200	0	0.0	10.8	Insufficient
1	000565SMH	1.286	2	6.5	6.1	
1	000566SMH	2.557	3	9.8	7.8	
1	000567SMH	2.939	3	9.8	10.9	Insufficient
1	000568SMH	4.385	6	19.5	22.2	Insufficient
1	000571SMH	2.335	8	26.0	9.3	
1	000572SMH	1.250	1	3.3	4.1	Insufficient
1	000577SMH	2.670	1	3.3	13.0	Insufficient
1	000578SMH	1.043	2	6.5	2.9	
1	000902IN	5.139	7	22.8	21.3	
1	000904IN	4.075	2	6.5	17.3	Insufficient
1	000919IN	3.301	0	0.0	12.8	Insufficient
1	000920IN	1.508	5	16.3	8.0	
1	000921IN	2.355	1	3.3	12.3	Insufficient
1	000927IN	6.142	4	13.0	30.5	Insufficient
1	000930IN	2.252	2	6.5	12.4	Insufficient
1	000931IN	0.356	1	3.3	1.7	
1	000939IN	3.027	1	3.3	14.1	Insufficient
1	001026IN	6.012	1	3.3	28.8	Insufficient
1	001080IN	2.681	4	13.0	13.5	Insufficient
1	001083IN	4.390	1	3.3	19.4	Insufficient
1	001084IN	1.415	2	6.5	7.5	Insufficient
1	001100IN	1.012	4	13.0	5.9	

TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
1	001101IN	5.274	9	29.3	29.4	Insufficient
1	001127IN	2.061	4	13.0	11.9	
1	001649IN	0.997	0	0.0	4.6	Insufficient
1	004040SMH	1.456	5	16.3	8.5	
2	000032IO	3.130	0	0.0	9.7	Insufficient
2	000034IO	3.616	3	9.8	12.8	Insufficient
2	000099SMH	2.454	1	3.3	12.2	Insufficient
2	000100SMH	26.441	0	0.0	101.2	Insufficient
2	000103SMH	6.204	4	13.0	28.6	Insufficient
2	0001054IN	2.221	6	19.5	8.2	
2	0001059IN	1.627	1	3.3	7.1	Insufficient
2	0001060IN	7.789	1	3.3	34.9	Insufficient
2	0001061IN	3.580	2	6.5	18.7	Insufficient
2	0001063IN	0.227	1	3.3	1.3	
2	0001066IN	1.493	4	13.0	7.3	
2	0001074IN	0.857	3	9.8	4.8	
2	0001077IN	7.562	7	22.8	35.5	Insufficient
2	000107SMH	0.393	0	0.0	2.3	Insufficient
2	000110SMH	3.445	6	19.5	17.9	
2	000115SMH	1.550	0	0.0	6.1	Insufficient
2	000148IN	2.226	1	3.3	11.5	Insufficient
2	000197SMH	3.724	2	6.5	9.0	Insufficient
2	000225IN	1.756	1	3.3	8.3	Insufficient
2	000227IN	1.116	5	16.3	6.1	
2	000237IN	1.074	1	3.3	5.2	Insufficient
2	000238IN	1.782	5	16.3	8.2	
2	000249IN	1.663	7	22.8	9.1	
2	000253IO	1.591	0	0.0	5.3	Insufficient
2	000254IN	1.560	5	16.3	8.1	
2	000256IN	3.001	1	3.3	16.3	Insufficient
2	002881ND	16.105	8	26.0	79.6	Insufficient
2	000291IO	1.544	2	6.5	5.0	
2	000319IO	3.869	0	0.0	11.1	Insufficient
2	000324SMH	7.660	2	6.5	40.7	Insufficient
2	000349SMH	3.099	5	16.3	16.0	
2	000359SMH	8.450	0	0.0	39.0	Insufficient
2	000361SMH	22.619	0	0.0	90.9	Insufficient
2	000364SMH	1.978	2	6.5	10.2	Insufficient
2	000376SMH	2.655	6	19.5	13.6	
2	000377SMH	1.291	1	3.3	5.9	Insufficient
2	000378SMH	2.458	4	13.0	11.7	
2	000383SMH	1.007	3	9.8	5.7	
2	000396SMH	1.198	1	3.3	6.6	Insufficient
2	000397SMH	2.111	1	3.3	7.5	Insufficient
2	000398SMH	1.002	0	0.0	3.9	Insufficient
2	000415IN	3.698	3	9.8	9.9	Insufficient
2	000418IN	2.056	1	3.3	9.2	Insufficient
2	000955IN	1.947	2	6.5	10.7	Insufficient
2	000959IN	0.926	3	9.8	5.3	
2	000980IN	2.851	1	3.3	14.8	Insufficient
2	000987IN	2.934	9	29.3	15.6	
2	001002IN	1.198	2	6.5	6.5	Insufficient
2	001012IN	1.782	1	3.3	9.4	Insufficient

TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
2	001014IN	14.850	0	0.0	63.6	Insufficient
2	001015IN	3.290	10	32.5	16.7	
2	001088IN	2.386	5	16.3	12.3	
2	001194SMH	0.434	2	6.5	2.2	
2	001201SMH	1.865	2	6.5	7.4	Insufficient
2	001399SMH	1.457	2	6.5	7.6	Insufficient
2	001402SMH	1.296	2	6.5	6.1	
2	001409SMH	2.035	1	3.3	10.3	Insufficient
2	001413SMH	17.495	0	0.0	78.9	Insufficient
2	001419SMH	14.473	4	13.0	71.6	Insufficient
2	001420SMH	0.449	0	0.0	2.5	Insufficient
2	001423SMH	1.896	5	16.3	8.6	
2	001474SMH	0.661	0	0.0	3.7	Insufficient
2	001475SMH	0.522	0	0.0	2.9	Insufficient
2	001483SMH	3.001	7	22.8	12.7	
2	001484SMH	0.764	0	0.0	3.8	Insufficient
2	001486SMH	7.624	2	6.5	21.4	Insufficient
2	001489SMH	4.819	5	16.3	20.4	Insufficient
2	001493SMH	2.924	0	0.0	14.3	Insufficient
2	001496SMH	1.124	0	0.0	5.1	Insufficient
2	001497SMH	0.616	0	0.0	3.1	Insufficient
2	003699IN	2.092	4	13.0	7.3	
2	003702IN	9.587	1	3.3	13.4	Insufficient
2	003705IN	0.930	4	13.0	3.8	
2	003708IN	1.389	2	6.5	5.2	
2	003730IN	3.368	4	13.0	10.2	
2	003733IN	3.698	2	6.5	10.1	Insufficient
2	003736IN	1.591	4	13.0	5.7	
2	003738IN	2.944	5	16.3	13.9	
2	003743IN	0.966	2	6.5	3.9	
2	003746IN	1.338	3	9.8	5.6	
2	003747IN	3.502	0	0.0	6.9	Insufficient
2	003748IN	0.548	1	3.3	2.6	
2	003750IN	0.987	2	6.5	4.0	
2	003754IN	5.248	3	9.8	9.6	
2	003759IN	2.691	3	9.8	9.6	
2	003882IN	1.586	2	6.5	7.7	Insufficient
2	004109IN	2.934	6	19.5	10.9	
2	004112IN	0.682	2	6.5	3.8	
2	004113IN	2.107	1	3.3	7.8	Insufficient
2	004116IN	1.978	4	13.0	9.6	
2	004118IN	0.888	1	3.3	4.7	Insufficient
2	004120IN	2.014	5	16.3	8.4	
2	004122IN	1.836	4	13.0	10.8	
2	004148IN	1.418	3	9.8	7.1	
2	004151IN	1.952	5	16.3	10.5	
2	004160IN	0.671	1	3.3	3.9	Insufficient
2	004164IN	0.744	1	3.3	4.4	Insufficient
2	004168IN	2.231	9	29.3	11.3	
2	004197IN	8.657	6	19.5	42.7	Insufficient
2	004199IN	2.862	6	19.5	16.2	
2	004212IN	1.763	3	9.8	10.2	Insufficient
2	004213IN	3.201	1	3.3	18.0	Insufficient

TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
2	004216IN	1.033	6	19.5	6.1	
2	004220IN	1.327	1	3.3	6.6	Insufficient
2	004224IN	0.997	2	6.5	4.9	
2	004227IN	0.795	5	16.3	3.7	
2	004595IN	2.252	3	9.8	9.9	Insufficient
2	004596IN	3.497	5	16.3	11.1	
2	004598IN	0.837	1	3.3	3.0	
2	004600IN	0.346	3	9.8	1.8	
2	004606IN	1.405	6	19.5	7.3	
2	004614IN	1.080	2	6.5	5.7	
2	004625IN	0.801	3	9.8	4.1	
2	004629IN	1.348	4	13.0	6.5	
2	004632IN	3.461	3	9.8	12.9	Insufficient
2	004640IN	1.694	4	13.0	7.8	
2	004643IN	1.426	1	3.3	5.1	Insufficient
2	004645IN	1.059	2	6.5	5.0	
2	004646IN	2.485	1	3.3	8.0	Insufficient
2	004647IN	3.435	3	9.8	17.3	Insufficient
2	004650IN	2.257	1	3.3	9.1	Insufficient
2	004651IN	0.630	1	3.3	2.2	
2	004656IN	1.142	1	3.3	5.1	Insufficient
2	004657IN	2.319	7	22.8	9.6	
2	005028IN	1.741	1	3.3	9.9	Insufficient
2	005029IN	1.049	0	0.0	4.8	Insufficient
2	005030IN	0.909	3	9.8	5.0	
3	000020IO	1.932	0	0.0	11.5	Insufficient
3	000021IO	2.991	0	0.0	14.5	Insufficient
3	000035IO	4.224	2	6.5	5.7	
3	000065ND	2.056	0	0.0	8.8	Insufficient
3	000069ND	1.612	0	0.0	7.4	Insufficient
3	000117SMH	5.320	0	0.0	20.7	Insufficient
3	000119SMH	0.702	0	0.0	3.8	Insufficient
3	000122SMH	0.708	0	0.0	3.9	Insufficient
3	000125SMH	1.126	0	0.0	5.3	Insufficient
3	000127SMH	1.379	0	0.0	6.9	Insufficient
3	000130SMH	3.786	0	0.0	17.3	Insufficient
3	000131SMH	0.563	0	0.0	3.1	Insufficient
3	000132SMH	0.775	0	0.0	4.1	Insufficient
3	000134SMH	0.863	4	13.0	4.2	
3	000138SMH	1.622	0	0.0	6.3	Insufficient
3	000139SMH	0.777	13	42.3	4.3	
3	000143SMH	1.912	1	3.3	10.8	Insufficient
3	000145IN	6.059	1	3.3	28.7	Insufficient
3	000147IN	1.705	2	6.5	5.4	
3	000147SMH	0.878	8	26.0	4.6	
3	000150SMH	2.226	5	16.3	10.5	
3	000162SMH	2.093	6	19.5	9.0	
3	000164SMH	5.052	0	0.0	10.4	Insufficient
3	000171SMH	3.337	6	19.5	15.8	
3	000173SMH	0.849	1	3.3	5.0	Insufficient
3	000179SMH	3.048	5	16.3	12.7	
3	000180SMH	0.963	0	0.0	5.6	Insufficient
3	000181SMH	0.643	7	22.8	3.4	

TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
3	000185SMH	0.460	0	0.0	2.7	Insufficient
3	000191SMH	3.471	3	9.8	19.6	Insufficient
3	000330IN	1.327	2	6.5	7.4	Insufficient
3	000332IN	1.074	2	6.5	4.9	
3	000335IN	0.940	3	9.8	5.5	
3	000336IN	2.185	1	3.3	9.5	Insufficient
3	000352IN	1.733	4	13.0	8.1	
3	000379IN	3.378	8	26.0	14.0	
3	000383IN	3.409	4	13.0	13.5	Insufficient
3	000386IN	1.229	2	6.5	5.8	
3	000391IN	4.329	1	3.3	17.8	Insufficient
3	000392IN	1.307	2	6.5	6.2	
3	000395IN	2.184	3	9.8	9.5	
3	000402IN	1.829	1	3.3	6.3	Insufficient
3	000403IN	0.728	2	6.5	3.7	
3	000406IN	1.451	1	3.3	4.9	Insufficient
3	000412IN	2.320	1	3.3	9.3	Insufficient
3	000426IN	3.895	7	22.8	16.0	
3	000429IN	5.852	3	9.8	16.6	Insufficient
3	000432IN	1.007	1	3.3	4.3	Insufficient
3	000433IN	1.201	1	3.3	6.7	Insufficient
3	000434IN	1.152	2	6.5	3.9	
3	000440IN	1.240	3	9.8	6.2	
3	000453IN	3.094	5	16.3	12.6	
3	000461IN	10.165	1	3.3	19.8	Insufficient
3	000476IN	3.104	2	6.5	12.7	Insufficient
3	000477IN	4.971	5	16.3	22.1	Insufficient
3	000484IN	1.327	1	3.3	5.8	Insufficient
3	003760IN	3.874	1	3.3	7.1	Insufficient
3	003761IN	5.976	4	13.0	11.5	
3	004187IN	3.967	4	13.0	17.9	Insufficient
4	000344CB	2.386	1	3.3	10.1	Insufficient
4	000368CB	2.366	3	9.8	13.5	Insufficient
4	000390ND	3.853	0	0.0	14.7	Insufficient
4	000454IO	0.501	0	0.0	2.4	Insufficient
4	000455IO	0.811	0	0.0	3.1	Insufficient
4	001106ND	2.268	0	0.0	13.4	Insufficient
4	001251ND	1.978	0	0.0	7.9	Insufficient
4	001312ND	0.992	0	0.0	4.0	Insufficient
4	001418ND	1.111	0	0.0	4.2	Insufficient
4	002063SMH	1.823	1	3.3	8.5	Insufficient
4	002064SMH	1.142	2	6.5	5.6	
4	002136SMH	2.242	5	16.3	9.6	
4	002139SMH	2.087	0	0.0	8.1	Insufficient
4	002140SMH	1.792	2	6.5	6.8	Insufficient
4	002143SMH	1.405	1	3.3	6.7	Insufficient
4	002145SMH	0.718	1	3.3	3.5	Insufficient
4	002146SMH	2.273	2	6.5	9.0	Insufficient
4	002227SMH	1.028	0	0.0	4.8	Insufficient
4	002244SMH	2.887	2	6.5	13.0	Insufficient
4	002245SMH	1.715	2	6.5	7.9	Insufficient
4	002247SMH	2.128	0	0.0	9.0	Insufficient
4	002255SMH	1.429	4	13.0	7.3	

TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
4	002257SMH	2.454	2	6.5	11.2	Insufficient
4	002258SMH	3.109	1	3.3	14.6	Insufficient
4	002267SMH	2.608	3	9.8	10.9	Insufficient
4	002271SMH	1.803	1	3.3	7.3	Insufficient
4	002274SMH	1.209	0	0.0	6.0	Insufficient
4	002277SMH	4.272	2	6.5	11.8	Insufficient
4	002278SMH	2.681	0	0.0	7.8	Insufficient
4	002281SMH	1.958	3	9.8	9.6	
4	002282SMH	0.542	2	6.5	2.8	
4	002286SMH	2.273	4	13.0	10.7	
4	002290SMH	1.699	3	9.8	6.7	
4	002306SMH	1.049	1	3.3	5.3	Insufficient
4	002307SMH	1.193	0	0.0	6.2	Insufficient
4	002323SMH	4.850	3	9.8	21.3	Insufficient
4	002767SMH	2.526	1	3.3	10.1	Insufficient
4	002769SMH	1.379	1	3.3	6.5	Insufficient
4	002770SMH	1.098	1	3.3	6.1	Insufficient
4	002773SMH	1.911	0	0.0	6.8	Insufficient
4	002782SMH	1.457	0	0.0	6.6	Insufficient
4	002784SMH	1.457	2	6.5	6.6	Insufficient
4	002805SMH	2.774	1	3.3	12.0	Insufficient
4	002807SMH	2.215	0	0.0	8.7	Insufficient
4	002813SMH	2.076	0	0.0	8.4	Insufficient
4	002815SMH	0.687	1	3.3	3.7	Insufficient
4	002816SMH	1.973	1	3.3	8.3	Insufficient
4	002817SMH	2.490	4	13.0	10.8	
4	002818SMH	3.337	0	0.0	13.7	Insufficient
4	002839SMH	1.198	2	6.5	5.3	
4	002840SMH	2.515	2	6.5	11.0	Insufficient
4	002845SMH	3.270	5	16.3	15.2	
4	002856SMH	1.193	2	6.5	5.8	
4	002858SMH	9.995	0	0.0	25.8	Insufficient
4	002864SMH	2.779	2	6.5	12.2	Insufficient
4	002866SMH	2.009	0	0.0	6.0	Insufficient
4	002867SMH	0.780	0	0.0	3.0	Insufficient
4	002871SMH	3.017	0	0.0	9.5	Insufficient
4	002873SMH	2.009	1	3.3	9.1	Insufficient
4	005032IN	1.477	2	6.5	7.4	Insufficient
4	005033IN	1.488	2	6.5	6.7	Insufficient
4	005039IN	1.970	1	3.3	17.0	Insufficient
4	007034IN	2.016	3	9.8	9.3	
4	007040IN	0.785	1	3.3	4.1	Insufficient
4	007044IN	1.296	0	0.0	5.3	Insufficient
4	007048IN	1.689	2	6.5	7.1	Insufficient
4	007051IN	4.034	1	3.3	14.2	Insufficient
4	007057IN	2.433	3	9.8	10.3	Insufficient
4	007379IN	0.496	1	3.3	2.6	
4	007381IN	3.895	1	3.3	11.5	Insufficient
4	007383IN	0.832	2	6.5	4.5	
4	007385IN	1.322	2	6.5	5.3	
4	007387IN	2.515	2	6.5	8.8	Insufficient
4	007402IN	1.136	3	9.8	5.8	
4	007409IN	0.930	1	3.3	3.5	Insufficient

TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
4	007454IN	3.254	1	3.3	15.0	Insufficient
4	008382IN	0.764	2	6.5	3.6	
4	008386IN	1.643	2	6.5	6.7	Insufficient
4	008484IN	1.105	1	3.3	4.5	Insufficient
4	008485IN	0.894	1	3.3	4.8	Insufficient
4	008489IN	1.508	2	6.5	7.6	Insufficient
4	008492IN	4.416	3	9.8	15.4	Insufficient
4	008505IN	2.485	2	6.5	10.8	Insufficient
4	008758IN	1.446	1	3.3	6.6	Insufficient
4	008765IN	0.832	2	6.5	3.7	
4	008767IN	1.684	3	9.8	7.0	
4	008770IN	1.498	2	6.5	6.7	Insufficient
4	008771IN	2.071	1	3.3	7.7	Insufficient
4	008772IN	1.126	1	3.3	5.9	Insufficient
4	008773IN	0.749	1	3.3	4.1	Insufficient
4	008774IN	1.247	1	3.3	6.6	Insufficient
4	008776IN	0.735	2	6.5	4.2	
4	008777IN	0.687	1	3.3	2.8	
4	008778IN	2.133	1	3.3	8.5	Insufficient
4	008784IN	1.240	3	9.8	6.7	
4	008790IN	2.763	2	6.5	12.9	Insufficient
4	008795IN	3.350	1	3.3	13.8	Insufficient
4	008796IN	3.161	2	6.5	11.8	Insufficient
4	008800IN	2.048	4	13.0	8.3	
4	008812IN	2.660	3	9.8	15.3	Insufficient
4	008813IN	6.121	1	3.3	19.2	Insufficient
4	008814IN	2.500	1	3.3	9.5	Insufficient
4	008867IN	1.854	2	6.5	8.9	Insufficient
4	008896IN	2.175	3	9.8	9.9	Insufficient
4	008913IN	0.837	1	3.3	4.3	Insufficient
4	008915IN	3.631	2	6.5	10.0	Insufficient
4	008930IN	2.118	2	6.5	10.3	Insufficient
4	008933IN	1.307	2	6.5	6.8	Insufficient
5	000350CB	5.661	3	9.8	22.4	Insufficient
5	001383ND	0.501	0	0.0	2.8	Insufficient
5	002311SMH	1.999	6	19.5	8.1	
5	002317SMH	1.730	2	6.5	8.2	Insufficient
5	002319SMH	3.760	0	0.0	15.8	Insufficient
5	002821SMH	2.929	2	6.5	13.4	Insufficient
5	002826SMH	1.632	0	0.0	7.2	Insufficient
5	006983IN	6.534	2	6.5	23.2	Insufficient
5	007417IN	2.293	3	9.8	11.7	Insufficient
5	007418IN	3.239	3	9.8	12.6	Insufficient
5	007427IN	4.330	4	13.0	20.3	Insufficient
5	007429IN	1.736	3	9.8	8.8	
5	007432IN	1.095	2	6.5	5.8	
5	007433IN	0.904	2	6.5	4.5	
5	007435IN	1.554	2	6.5	8.2	Insufficient
5	007437IN	1.911	2	6.5	10.4	Insufficient
5	007442IN	0.126	1	3.3	0.7	
5	007443IN	0.616	1	3.3	3.2	
5	007457IN	2.200	1	3.3	9.0	Insufficient
5	008836IN	2.175	2	6.5	9.9	Insufficient

TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
5	008871IN	2.127	5	16.3	10.3	
5	008872IN	1.348	4	13.0	6.6	
5	008875IN	2.691	0	0.0	11.0	Insufficient
5	008877IN	3.042	2	6.5	13.4	Insufficient
5	008888IN	0.904	3	9.8	4.6	
5	008890IN	1.358	1	3.3	6.1	Insufficient
6	000187CB	4.819	1	3.3	19.5	Insufficient
6	000189CB	2.490	0	0.0	10.7	Insufficient
6	000195CB	2.014	2	6.5	8.4	Insufficient
6	000200CB	10.041	1	3.3	31.2	Insufficient
6	000205CB	3.667	2	6.5	12.7	Insufficient
6	000211CB	2.340	4	13.0	8.4	
6	000224CB	7.454	2	6.5	25.1	Insufficient
6	000307CB	3.151	2	6.5	16.5	Insufficient
6	000316CB	1.012	1	3.3	4.1	Insufficient
6	000348CB	2.841	6	19.5	12.2	
6	000421IO	1.689	0	0.0	9.1	Insufficient
6	002067SMH	2.583	4	13.0	11.4	
6	002068SMH	1.568	3	9.8	8.3	
6	002071SMH	1.441	2	6.5	7.3	Insufficient
6	002072SMH	2.068	0	0.0	11.1	Insufficient
6	002074SMH	1.896	1	3.3	8.2	Insufficient
6	002078SMH	3.430	11	35.8	18.4	
6	002079SMH	1.727	3	9.8	7.4	
6	002085SMH	3.562	1	3.3	8.2	Insufficient
6	002086SMH	1.612	4	13.0	8.7	
6	002092SMH	2.040	0	0.0	11.8	Insufficient
6	002094SMH	1.906	8	26.0	9.0	
6	002096SMH	1.986	1	3.3	11.0	Insufficient
6	002135SMH	4.168	3	9.8	16.1	Insufficient
6	002231SMH	4.530	5	16.3	19.8	Insufficient
6	002233SMH	2.231	4	13.0	9.3	
6	002235SMH	4.468	2	6.5	14.9	Insufficient
6	002236SMH	3.161	1	3.3	12.5	Insufficient
6	002237SMH	3.063	3	9.8	10.9	Insufficient
6	002241SMH	2.412	1	3.3	9.2	Insufficient
6	002777SMH	2.779	4	13.0	10.0	
6	002778SMH	1.844	0	0.0	8.6	Insufficient
6	002785SMH	0.764	1	3.3	4.0	Insufficient
6	002788SMH	1.550	0	0.0	7.6	Insufficient
6	002789SMH	0.852	1	3.3	4.2	Insufficient
6	002790SMH	1.286	0	0.0	6.2	Insufficient
6	002804SMH	3.001	4	13.0	12.7	
6	002828SMH	8.673	2	6.5	31.6	Insufficient
6	006908IN	6.248	4	13.0	25.9	Insufficient
6	006912IN	6.420	4	13.0	22.2	Insufficient
6	006948IN	7.474	5	16.3	25.2	Insufficient
6	006961IN	2.526	3	9.8	8.5	
6	006969IN	0.666	2	6.5	3.2	
6	006981IN	1.374	1	3.3	5.9	Insufficient
6	006989IN	2.314	2	6.5	9.0	Insufficient
6	006999IN	3.368	4	13.0	12.3	
6	007031IN	2.924	3	9.8	10.5	Insufficient

TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
6	007375IN	1.147	1	3.3	5.2	Insufficient
6	007394IN	2.970	2	6.5	11.1	Insufficient
6	008389IN	0.723	9	29.3	3.5	
6	008405IN	1.291	3	9.8	6.9	
6	008406IN	2.092	1	3.3	8.1	Insufficient
6	008409IN	3.791	1	3.3	21.0	Insufficient
6	008415IN	1.762	1	3.3	10.6	Insufficient
6	008416IN	1.033	1	3.3	4.9	Insufficient
6	008419IN	0.902	1	3.3	5.3	Insufficient
6	008423IN	0.904	0	0.0	4.6	Insufficient
6	008427IN	0.744	1	3.3	4.0	Insufficient
6	008439IN	2.308	6	19.5	10.3	
6	008440IN	1.043	1	3.3	5.5	Insufficient
6	008442IN	0.651	3	9.8	3.5	
6	008445IN	1.596	1	3.3	7.0	Insufficient
6	008451IN	8.668	1	3.3	34.3	Insufficient
6	008455IN	0.795	5	16.3	4.2	
6	008459IN	0.777	2	6.5	3.9	
6	008464IN	3.264	3	9.8	16.3	Insufficient
6	008469IN	0.852	2	6.5	4.7	
6	008480IN	1.074	2	6.5	5.3	
6	008810IN	2.285	4	13.0	9.1	
7	000087CB	0.935	3	9.8	5.2	
7	000088CB	2.324	4	13.0	10.9	
7	000159CB	2.048	1	3.3	9.4	Insufficient
7	000161CB	3.116	2	6.5	6.6	Insufficient
7	000169CB	4.726	1	3.3	17.8	Insufficient
7	000180CB	2.980	4	13.0	10.3	
7	000181CB	1.684	5	16.3	7.5	
7	000231CB	2.918	4	13.0	14.3	Insufficient
7	000236CB	3.037	1	3.3	13.1	Insufficient
7	000239CB	2.665	1	3.3	10.0	Insufficient
7	000240CB	0.878	1	3.3	3.9	Insufficient
7	000242CB	1.183	5	16.3	5.7	
7	000248CB	4.029	1	3.3	11.1	Insufficient
7	000251CB	3.135	1	3.3	12.6	Insufficient
7	000252CB	1.131	0	0.0	5.2	Insufficient
7	000262CB	1.596	1	3.3	7.8	Insufficient
7	000263CB	1.410	3	9.8	5.2	
7	000282CB	2.330	8	26.0	10.0	
7	000323CB	4.287	4	13.0	14.8	Insufficient
7	000324CB	1.836	1	3.3	8.3	Insufficient
7	000326CB	0.723	1	3.3	3.4	Insufficient
7	000327CB	1.901	1	3.3	8.7	Insufficient
7	000331CB	1.131	2	6.5	6.1	
7	000425IO	0.940	1	3.3	5.0	Insufficient
7	000440IO	1.038	0	0.0	5.3	Insufficient
7	001115ND	1.606	0	0.0	7.2	Insufficient
7	001229ND	3.079	0	0.0	13.0	Insufficient
7	001350ND	1.467	1	3.3	7.4	Insufficient
7	001361ND	2.469	0	0.0	13.8	Insufficient
7	001785SMH	1.643	4	13.0	9.5	
7	001789SMH	1.405	0	0.0	6.8	Insufficient

TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
7	001790SMH	2.696	7	22.8	11.8	
7	001793SMH	1.715	5	16.3	8.4	
7	001800SMH	1.978	3	9.8	7.6	
7	001806SMH	0.914	2	6.5	4.7	
7	001809SMH	1.218	6	19.5	6.4	
7	001813SMH	1.183	1	3.3	4.7	Insufficient
7	001816SMH	1.720	0	0.0	9.7	Insufficient
7	001828SMH	1.343	3	9.8	6.1	
7	001829SMH	0.232	0	0.0	1.1	Insufficient
7	001831SMH	1.885	8	26.0	8.8	
7	001835SMH	0.899	4	13.0	4.4	
7	001851SMH	5.103	2	6.5	22.9	Insufficient
7	001854SMH	2.362	0	0.0	11.8	Insufficient
7	001855SMH	1.601	1	3.3	9.4	Insufficient
7	001856SMH	1.720	0	0.0	9.9	Insufficient
7	001867SMH	4.168	4	13.0	18.3	Insufficient
7	001868SMH	2.510	1	3.3	11.6	Insufficient
7	001873SMH	0.863	2	6.5	3.8	
7	001874SMH	1.157	2	6.5	5.2	
7	001877SMH	1.513	2	6.5	7.2	Insufficient
7	001953SMH	4.902	0	0.0	17.7	Insufficient
7	001954SMH	2.676	0	0.0	11.1	Insufficient
7	001957SMH	2.268	2	6.5	8.7	Insufficient
7	001960SMH	0.770	1	3.3	3.7	Insufficient
7	001979SMH	1.653	0	0.0	4.9	Insufficient
7	001980SMH	2.614	2	6.5	17.3	Insufficient
7	001989SMH	2.645	2	6.5	5.3	
7	001993SMH	2.949	1	3.3	9.5	Insufficient
7	001994SMH	1.694	3	9.8	6.5	
7	001995SMH	2.490	0	0.0	11.5	Insufficient
7	001996SMH	0.744	3	9.8	4.3	
7	002005SMH	2.800	1	3.3	13.0	Insufficient
7	002008SMH	1.472	2	6.5	6.5	
7	002032SMH	2.944	11	35.8	15.0	
7	002033SMH	1.792	9	29.3	9.5	
7	002034SMH	1.224	0	0.0	5.6	Insufficient
7	002036SMH	1.637	3	9.8	8.2	
7	002040SMH	2.603	7	22.8	13.5	
7	002044SMH	1.100	1	3.3	5.6	Insufficient
7	002046SMH	0.258	1	3.3	1.4	
7	002050SMH	1.049	3	9.8	5.0	
7	002052SMH	1.498	1	3.3	8.8	Insufficient
7	002058SMH	3.998	5	16.3	18.3	Insufficient
7	002087SMH	0.579	1	3.3	2.4	
7	002090SMH	1.321	0	0.0	5.9	Insufficient
7	002099SMH	3.796	3	9.8	14.2	Insufficient
7	002102SMH	1.219	2	6.5	5.6	
7	002104SMH	2.665	8	26.0	11.3	
7	002109SMH	1.446	6	19.5	7.3	
7	002110SMH	2.433	4	13.0	10.3	
7	002112SMH	0.739	0	0.0	3.7	Insufficient
7	002113SMH	1.436	6	19.5	6.2	
7	002114SMH	14.762	1	3.3	38.3	Insufficient

TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
7	002116SMH	1.240	2	6.5	6.5	Insufficient
7	002117SMH	3.476	0	0.0	14.0	Insufficient
7	002122SMH	1.136	0	0.0	5.6	Insufficient
7	002125SMH	1.756	2	6.5	6.3	
7	002128SMH	1.829	6	19.5	7.8	
7	002132SMH	0.754	4	13.0	3.3	
7	002133SMH	2.480	8	26.0	11.4	
7	002152SMH	1.426	4	13.0	7.2	
7	002153SMH	1.322	0	0.0	7.1	Insufficient
7	002162SMH	1.400	0	0.0	6.8	Insufficient
7	002163SMH	1.524	1	3.3	7.9	Insufficient
7	002166SMH	0.640	0	0.0	3.8	Insufficient
7	002168SMH	1.637	1	3.3	9.0	Insufficient
7	002171SMH	2.061	4	13.0	10.6	
7	002174SMH	0.408	1	3.3	2.4	
7	002175SMH	2.226	5	16.3	12.8	
7	002176SMH	2.045	8	26.0	10.5	
7	002180SMH	1.431	3	9.8	8.2	
7	002182SMH	2.045	6	19.5	10.0	
7	002184SMH	2.608	7	22.8	13.6	
7	002186SMH	1.338	2	6.5	7.2	Insufficient
7	002191SMH	8.595	0	0.0	36.4	Insufficient
7	002194SMH	3.998	1	3.3	18.1	Insufficient
7	002197SMH	2.128	4	13.0	9.0	
7	002198SMH	1.854	4	13.0	8.2	
7	002202SMH	4.850	1	3.3	23.9	Insufficient
7	002204SMH	3.456	5	16.3	15.8	
7	002209SMH	1.116	0	0.0	6.2	Insufficient
7	002210SMH	0.950	2	6.5	5.3	
7	002212SMH	0.894	0	0.0	5.2	Insufficient
7	002216SMH	3.177	7	22.8	18.4	
7	002218SMH	2.030	1	3.3	11.8	Insufficient
7	002220SMH	3.161	0	0.0	16.9	Insufficient
7	002223SMH	3.450	7	22.8	16.9	
7	002294SMH	2.211	3	9.8	11.7	Insufficient
7	002298SMH	0.764	3	9.8	4.3	
7	002304SMH	0.981	0	0.0	4.0	Insufficient
7	002666SMH	9.122	0	0.0	42.7	Insufficient
7	002677SMH	2.546	13	42.3	10.9	
7	002678SMH	3.321	4	13.0	14.6	Insufficient
7	002680SMH	2.929	1	3.3	12.5	Insufficient
7	002681SMH	1.369	3	9.8	6.4	
7	002682SMH	2.371	0	0.0	9.8	Insufficient
7	002685SMH	1.555	3	9.8	6.7	
7	002696SMH	1.942	9	29.3	7.9	
7	002698SMH	1.508	3	9.8	5.7	
7	002703SMH	1.782	11	35.8	9.2	
7	002706SMH	2.361	6	19.5	9.6	
7	002708SMH	2.577	5	16.3	13.9	
7	002714SMH	1.994	2	6.5	9.8	Insufficient
7	002720SMH	2.515	5	16.3	11.9	
7	002724SMH	2.392	7	22.8	12.2	
7	002726SMH	1.240	1	3.3	6.3	Insufficient

TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
7	002732SMH	2.071	0	0.0	9.6	Insufficient
7	002733SMH	0.974	1	3.3	4.4	Insufficient
7	002734SMH	1.774	2	6.5	8.4	Insufficient
7	002737SMH	0.857	1	3.3	3.9	Insufficient
7	002740SMH	0.811	0	0.0	3.7	Insufficient
7	002742SMH	2.670	0	0.0	9.8	Insufficient
7	002745SMH	1.028	0	0.0	4.9	Insufficient
7	002754SMH	2.710	1	3.3	12.3	Insufficient
7	002756SMH	0.956	2	6.5	5.3	
7	002757SMH	4.535	1	3.3	18.3	Insufficient
7	002759SMH	1.865	3	9.8	10.0	Insufficient
7	002791SMH	2.841	5	16.3	11.4	
7	002794SMH	1.849	1	3.3	7.0	Insufficient
7	002795SMH	2.504	2	6.5	12.6	Insufficient
7	002799SMH	2.872	3	9.8	16.6	Insufficient
7	003548SMH	2.743	3	9.8	12.5	Insufficient
7	006288IN	2.471	1	3.3	13.2	Insufficient
7	006296IN	2.949	0	0.0	12.0	Insufficient
7	006309IN	2.376	0	0.0	9.1	Insufficient
7	006310IN	3.094	3	9.8	11.9	Insufficient
7	006313IN	1.296	1	3.3	4.2	Insufficient
7	006314IN	1.534	3	9.8	6.6	
7	006319IN	3.709	3	9.8	11.2	Insufficient
7	006323IN	1.854	2	6.5	7.1	Insufficient
7	006326IN	1.881	4	13.0	8.2	
7	006333IN	9.118	3	9.8	48.6	Insufficient
7	006351IN	1.147	2	6.5	5.3	
7	006352IN	2.145	1	3.3	10.1	Insufficient
7	006409IN	2.278	3	9.8	8.3	
7	006410IN	0.919	2	6.5	4.7	
7	006416IN	2.014	3	9.8	8.0	
7	006418IN	0.713	2	6.5	3.7	
7	006426IN	1.525	3	9.8	8.4	
7	006430IN	1.839	5	16.3	10.1	
7	006438IN	1.258	4	13.0	6.8	
7	006442IN	4.442	1	3.3	17.5	Insufficient
7	006443IN	0.919	2	6.5	4.3	
7	006563IN	5.170	3	9.8	17.1	Insufficient
7	006564IN	2.567	2	6.5	9.5	Insufficient
7	006599IN	1.849	6	19.5	9.3	
7	006607IN	3.425	1	3.3	2.5	
7	006608IN	3.294	0	0.0	1.0	Insufficient
7	006609IN	4.160	2	6.5	6.2	
7	006611IN	0.429	3	9.8	1.6	
7	006614IN	0.754	1	3.3	2.5	
7	006622IN	2.056	2	6.5	11.0	Insufficient
7	006629IN	2.681	4	13.0	12.6	
7	006657IN	6.074	2	6.5	24.4	Insufficient
7	006663IN	1.121	2	6.5	4.8	
7	006665IN	3.027	1	3.3	12.5	Insufficient
7	006670IN	1.730	5	16.3	8.6	
7	006686IN	1.260	2	6.5	6.3	
7	006688IN	1.085	2	6.5	5.4	

TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
7	006691IN	4.096	3	9.8	16.1	Insufficient
7	006692IN	1.947	1	3.3	7.6	Insufficient
7	006696IN	1.426	3	9.8	5.3	
7	006697IN	3.729	4	13.0	15.0	Insufficient
7	006700IN	1.596	2	6.5	8.2	Insufficient
7	006701IN	6.059	1	3.3	19.8	Insufficient
7	006704IN	1.761	5	16.3	10.0	
7	006715IN	0.935	6	19.5	5.2	
7	006742IN	1.999	7	22.8	10.3	
7	006744IN	0.671	4	13.0	3.7	
7	006746IN	1.684	2	6.5	6.2	
7	006747IN	3.900	1	3.3	14.2	Insufficient
7	006762IN	1.782	5	16.3	9.5	
7	006770IN	0.883	3	9.8	4.2	
7	006773IN	1.983	5	16.3	9.9	
7	006778IN	1.353	1	3.3	5.3	Insufficient
7	006779IN	0.899	1	3.3	3.2	
7	006792IN	0.367	1	3.3	2.1	
7	006806IN	2.407	5	16.3	9.2	
7	006827IN	1.162	2	6.5	5.5	
7	006828IN	2.738	4	13.0	11.1	
7	006843IN	1.043	2	6.5	4.7	
7	006846IN	0.677	1	3.3	3.1	
7	006847IN	2.521	2	6.5	11.8	Insufficient
7	006848IN	1.736	5	16.3	14.7	
7	006853IN	1.395	4	13.0	7.1	
7	006861IN	1.904	2	6.5	9.2	Insufficient
7	006868IN	2.562	3	9.8	5.1	
7	006870IN	2.347	3	9.8	10.6	Insufficient
7	006874IN	3.115	1	3.3	16.0	Insufficient
7	006895IN	4.530	2	6.5	25.3	Insufficient
7	006896IN	1.524	3	9.8	8.8	
7	006900IN	0.868	2	6.5	5.0	
7	006906IN	1.901	2	6.5	11.2	Insufficient
7	006907IN	0.981	1	3.3	5.7	Insufficient
7	007063IN	1.204	3	9.8	5.6	
7	007078IN	0.987	3	9.8	4.7	
7	007081IN	0.733	2	6.5	3.9	
7	007082IN	1.777	4	13.0	8.9	
7	007086IN	0.320	0	0.0	1.6	Insufficient
7	007091IN	2.773	3	9.8	9.1	
7	007093IN	4.529	5	16.3	21.3	Insufficient
7	007094IN	2.035	3	9.8	10.1	Insufficient
7	007110IN	4.157	13	42.3	18.0	
7	007111IN	2.588	2	6.5	12.5	Insufficient
7	007118IN	3.773	2	6.5	16.8	Insufficient
7	007145IN	0.723	1	3.3	3.8	Insufficient
7	007148IN	1.601	1	3.3	7.6	Insufficient
7	007149IN	1.498	2	6.5	6.4	
7	007163IN	0.408	1	3.3	2.3	
7	007166IN	2.087	3	9.8	8.7	
7	007167IN	1.462	6	19.5	6.9	
7	007171IN	0.542	1	3.3	2.9	

TABLE 1  
Detailed Inlet Capacity Results for Four Mile Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
7	007328IN	0.635	2	6.5	3.0	
7	007337IN	1.989	4	13.0	11.5	
7	007361IN	2.934	5	16.3	14.1	
7	008316IN	6.627	2	6.5	21.4	Insufficient
7	008317IN	1.240	5	16.3	6.3	
7	008323IN	1.529	6	19.5	7.0	
7	008331IN	1.317	2	6.5	5.8	
7	008333IN	1.018	1	3.3	5.1	Insufficient
7	008343IN	1.131	4	13.0	6.0	
7	008348IN	1.147	6	19.5	5.5	
7	008351IN	2.872	5	16.3	12.1	
7	008361IN	1.679	2	6.5	7.7	Insufficient
7	008372IN	2.169	3	9.8	10.4	Insufficient
7	008482IN	2.335	1	3.3	11.8	Insufficient
7	008508IN	1.495	1	3.3	6.2	Insufficient
7	008509IN	2.304	3	9.8	12.0	Insufficient
7	008515IN	0.914	1	3.3	4.8	Insufficient
7	008517IN	0.661	2	6.5	3.7	
7	008527IN	2.237	3	9.8	11.0	Insufficient
7	008529IN	2.330	5	16.3	12.6	
7	008548IN	1.963	4	13.0	9.9	
7	008591IN	0.801	3	9.8	4.2	
7	008607IN	0.408	2	6.5	2.2	
7	008623IN	2.164	5	16.3	9.2	
7	008681IN	1.477	4	13.0	6.8	
7	008702IN	2.882	1	3.3	15.5	Insufficient
7	008713IN	1.808	2	6.5	9.9	Insufficient
7	008724IN	1.105	4	13.0	6.0	
7	008725IN	0.987	2	6.5	5.8	
7	008741IN	0.878	1	3.3	4.8	Insufficient
7	008747IN	1.100	2	6.5	5.2	
7	008750IN	2.097	2	6.5	9.4	Insufficient

**Attachment D**  
**Detailed Model Results**

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TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
1	000515STMP	000322SMH	000323SMH	205	2.5	100.42	20.83	0.1	0	2.2	-	-	-	0.0	0.0	0	0	Surcharged
1	000628STMP	000902IN	000904IN	38	2.25	21.32	5.86	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000630STMP	000904IN	000905IN	29	2.25	38.6	10.32	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000631STMP	000905IN	004022SMH	111	2	38.64	15.51	0	0	-	0.7	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001131STMP	000315SMH	000316SMH	64	2.5	40.44	14.28	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001318STMP	000392SMH	000393SMH	14	5	246.8	12.93	0	0	-	0.5	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001319STMP	000089IO	000390SMH	407	5.5	258.74	14.07	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001336STMP	000393SMH	000369SMH	191	5	365.62	18.72	0	0	0.5	-	-	-	0.0	0.0	0	0	Surcharged
1	001341STMP	001100IN	001101IN	32	1.5	5.86	12.65	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001343STMP	001127IN	001101IN	263	1.25	11.02	8.9	0.2	0	Flooded	-	Flooded	-	0.1	0.0	62	0	Flooded
1	001345STMP	001101IN	000191ND	281	2.25	46.06	19.61	0	0	-	0.5	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001788STMP	000316SMH	002013ND	19	2.5	50.92	15.98	0	0	-	0.1	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001790STMP	000913IN	000920IN	44	1.5	28.07	17.89	0.4	0	0.1	0.3	-	-	0.0	0.0	0	0	Surcharged
1	001792STMP	000318SMH	000913IN	156	1.5	28	16.6	0.6	0.4	4.1	0.1	1.2	-	0.0	0.0	0	0	Insufficient Freeboard
1	001796STMP	000920IN	000921IN	197	3.5	114.62	22.44	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001798STMP	000921IN	000362SMH	201	3.5	126.67	22.22	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001804STMP	000928IN	000931IN	93	3	134.19	18.93	0.2	0.2	1.4	1.4	-	-	0.0	0.0	0	0	Surcharged
1	001805STMP	000320SMH	000928IN	17	3	126.48	17.81	0.2	0.2	2.4	1.4	-	-	0.0	0.0	0	0	Surcharged
1	001806STMP	000929IN	000928IN	6	1	7.83	19.69	0	0.2	-	3.4	1.0	-	0.0	0.0	0	0	Sufficient Capacity
1	001807STMP	000930IN	000929IN	9	1	7.81	11.62	0.6	0	Flooded	-	Flooded	1.0	0.6	0.0	2623	0	Flooded
1	001815STMP	000919IN	000130ND	18	1	12.74	24.32	0	0	-	1.3	0.9	-	0.0	0.0	0	0	Sufficient Capacity
1	001818STMP	000939IN	000321SMH	56	1.5	13.97	17.24	0	0.2	-	7.0	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001821STMP	000321SMH	000322SMH	333	2.5	79.73	16.02	0.2	0.1	6.0	2.2	-	-	0.0	0.0	0	0	Surcharged
1	001827STMP	000323SMH	000320SMH	231	3	116.79	20.84	0	0.2	-	2.4	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001924STMP	001084IN	000315SMH	203	2	40.38	16.84	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001925STMP	000601IO	000317SMH	106	4	83.42	15.26	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001926STMP	000317SMH	002013ND	160	4	83.37	15.22	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001927STMP	000319SMH	000318SMH	92	1.5	28	15.48	0.6	0.6	Flooded	4.1	Flooded	1.2	0.5	0.0	4382	0	Flooded
1	001929STMP	000927IN	001026IN	48	2	31.38	13.12	0.2	0.3	Flooded	4.8	Flooded	0.5	0.1	0.0	672	0	Flooded
1	001930STMP	000931IN	000084IO	76	4	135.84	11.42	0.2	0	0.4	-	-	-	0.0	0.0	0	0	Surcharged
1	001933STMP	000328SMH	000372SMH	67	2.5	73.66	16.95	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001940STMP	002838ND	000368SMH	178	5.5	339.62	21.34	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001942STMP	000372SMH	000371SMH	71	2.5	84.32	20.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001944STMP	000371SMH	000374SMH	91	2.5	84.33	30.15	0	0	-	0.8	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001948STMP	000375SMH	004040SMH	142	1.5	14.65	9.22	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001950STMP	0001048IN	000375SMH	42	1.25	14.77	13.37	0	0	-	0.2	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001996STMP	001080IN	001084IN	219	1.25	13.47	14.42	0	0	-	0.2	-	-	0.0	0.0	0	0	Sufficient Capacity
1	001998STMP	000389SMH	000087IO	94	4	185.44	16.14	0.3	0	2.9	-	-	-	0.0	0.0	0	0	Surcharged
1	001999STMP	000362SMH	000389SMH	130	4	126.71	16.97	0	0.3	-	2.9	-	-	0.0	0.0	0	0	Sufficient Capacity
1	002000STMP	001026IN	000389SMH	76	2	54.65	17.14	0.3	0.3	4.8	4.9	0.5	-	0.0	0.0	0	0	Insufficient Freeboard
1	002003STMP	001083IN	001084IN	67	2	19.38	8.03	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	003139STMP	000552SMH	000555SMH	154	2	37.85	11.91	0.4	0.4	4.0	1.8	1.6	0.2	0.0	0.0	0	0	Insufficient Freeboard
1	003140STMP	000553SMH	000552SMH	47	1.5	13.47	7.59	0.5	0.4	4.3	4.5	-	1.6	0.0	0.0	0	0	Surcharged
1	003141STMP	001647IN	000553SMH	32	1.5	4.34	4.33											

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition	
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS		
1	003149STMP	000556SMH	000557SMH	197	2	44.71	14.18	0.5	0.5	Flooded	0.7	Flooded	0.8	0.5	0.0	4845	0	Flooded	
1	003150STMP	000557SMH	000558SMH	175	2	44.32	15.57	0.5	0.5	0.7	0.9	0.8	1.3	0.0	0.0	0	0	Insufficient Freeboard	
1	003151STMP	000558SMH	000115IO	98	2	44.31	17.21	0.5	0	0.9	-	1.3	-	0.0	0.0	0	0	Insufficient Freeboard	
1	003154STMP	001649IN	001648IN	32	1.25	4.49	7.08	0.2	0.2	1.8	4.8	1.7	1.5	0.0	0.0	0	0	Insufficient Freeboard	
1	003166STMP	000563SMH	000564SMH	24	1.5	16.97	9.6	0.2	0.3	Flooded	Flooded	Flooded	0.0	0.2	14	863	0	Flooded	
1	003167STMP	000564SMH	000565SMH	101	1.5	22.55	12.64	0.3	0.3	Flooded	Flooded	Flooded	0.2	0.2	863	643	0	Flooded	
1	003169STMP	000565SMH	000566SMH	114	1.5	26.44	17.32	0.3	0.3	Flooded	7.2	Flooded	0.7	0.2	0.0	643	0	Flooded	
1	003173STMP	000566SMH	001664IN	34	2	32.19	16.97	0.3	0.3	6.7	8.3	0.7	0.5	0.0	0.0	0	0	Insufficient Freeboard	
1	003174STMP	001664IN	000567SMH	42	2	32.35	13.87	0.3	0.3	8.3	9.5	0.5	0.3	0.0	0.0	0	0	Insufficient Freeboard	
1	003185STMP	000568SMH	000321SMH	188	2	58.91	18.17	0.3	0.2	Flooded	6.5	Flooded	-	0.1	0.0	323	0	Flooded	
1	003203STMP	000571SMH	000563SMH	327	1.25	10.55	8.56	1.7	0.2	Flooded	Flooded	Flooded	1.0	0.0	836	14	0	Flooded	
1	003205STMP	000562SMH	000559SMH	259	1.5	6.22	5.61	0.1	0.2	1.2	2.9	-	-	0.0	0.0	0	0	Surcharged	
1	003206STMP	000560SMH	000553SMH	273	1.25	10.64	8.46	0.6	0.5	Flooded	4.6	Flooded	-	0.4	0.0	885	0	Flooded	
1	003207STMP	000561SMH	000560SMH	263	1.25	5.52	4.6	0.5	0.6	5.4	Flooded	0.1	Flooded	0.0	0.4	0	885	0	Insufficient Freeboard
1	003208STMP	000572SMH	000571SMH	35	1.25	3.39	5.44	1.6	1.7	Flooded	Flooded	Flooded	1.1	1.0	1175	836	0	Flooded	
1	003213STMP	000567SMH	000568SMH	288	2	40.55	13.54	0.3	0.3	9.5	Flooded	0.3	Flooded	0.0	0.1	0	323	0	Insufficient Freeboard
1	003216STMP	000577SMH	000578SMH	199	1.25	6.1	4.86	1.7	1.8	Flooded	Flooded	Flooded	1.2	1.4	4480	1336	0	Flooded	
1	003218STMP	000578SMH	000571SMH	33	1.25	8.54	6.78	1.8	1.7	Flooded	Flooded	Flooded	1.4	1.0	1336	836	0	Flooded	
1	006532STMP	004201IN	000524ND	48	1.25	8.64	17.33	0	0.5	-	3.8	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	010534STMP	006870IN	002089SMH	80	1.25	3.54	2.85	44.7	53.6	Flooded	Flooded	Flooded	2.8	2.7	4057	3972	0	Flooded	
1	014040STMP	000080IO	004022SMH	265	4	86	15.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014041STMP	004022SMH	000081IO	6	4	93.67	11.08	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014042STMP	002013ND	000082IO	7	4	98.17	11.72	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014043STMP	009022IN	000393SMH	101	7	196.23	7.59	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014044STMP	000393SMH	002838ND	17	5	-76.35	-11.96	0	0	0.5	-	-	-	0.0	0.0	0	0	Surcharged	
1	014045STMP	000369SMH	000374SMH	62	5	370.04	31.65	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014046STMP	000374SMH	000186ND	115	5	486.53	35.39	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014047STMP	004040SMH	000374SMH	45	2	23.07	22.54	0	0	-	1.3	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014048STMP	000368SMH	000187ND	165	6	339.7	16.43	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014049STMP	000160ND	000328SMH	105	2	65.29	20.62	0.5	0	2.3	0.2	-	-	0.0	0.0	0	0	Surcharged	
1	014050STMP	000365SMH	000160ND	148	2	65.29	20.45	0.5	0.5	Flooded	2.3	Flooded	-	0.5	0.0	13239	0	Flooded	
1	014051STMP	000083IO	000130ND	19	3.5	66.62	16.86	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014052STMP	000130ND	000920IN	74	3.5	79.08	12.37	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014055STMP	000390SMH	002838ND	47	7	275.57	21.51	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014056STMP	009024IN	004049SMH	77	5	148.28	14.17	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014057STMP	004049SMH	004047SMH	731	5	195.09	17.02	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014058STMP	004047SMH	009023IN	232	5	195.08	16.18	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014059STMP	009023IN	009022IN	283	6	195.11	7.89	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014060STMP	000394SMH	004049SMH	90	1.75	51.44	21	1.3	0	Flooded	-	Flooded	-	1.3	0.0	64678	0	Flooded	
1	014078STMP	000071ND	000180SMH	303	3	31.08	12.19	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	000326STMP	000099SMH	000102SMH	223	2	61.32	19.08	0.7	0.6	7.2	1.8	0.4	-	0.0	0.0	0	0	Insufficient Freeboard	
2	000333STMP	000110SMH	000111SMH	175	2	42.89	16.44	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	000336STMP	000111SMH	000112SMH	43	2	42.47	14.36	0											

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
2	000734STMP	000032IO	000031IO	68	1.25	9.69	14.57	0	0	-	-	0.7	1.4	0.0	0.0	0	0	Sufficient Capacity
2	000736STMP	000034IO	000411IN	72	1.5	22.39	19.32	0	0	-	-	0.8	-	0.0	0.0	0	0	Sufficient Capacity
2	000752STMP	0001063IN	0001062IN	19	1	12.79	15.86	0.4	0	4.6	-	-	-	0.0	0.0	0	0	Surcharged
2	000760STMP	0001070IN	0001073IN	78	2	35.47	18.43	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	000761STMP	0001077IN	0001070IN	36	2	35.46	20.32	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	000764STMP	0001074IN	0001073IN	13	1.25	4.81	9.61	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	000956STMP	000109SMH	000110SMH	200	1.5	25.65	14.3	0.2	0	3.9	-	0.6	-	0.0	0.0	0	0	Insufficient Freeboard
2	000960STMP	000240IN	000241IN	7	1	6.02	16.69	0	0	-	-	1.0	-	0.0	0.0	0	0	Sufficient Capacity
2	000961STMP	000241IN	000242IN	84	1.5	6.02	11.26	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	000963STMP	000242IN	000246IN	90	2	22.93	15.85	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	000967STMP	000246IN	000257IN	160	2.5	22.93	18.71	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	000969STMP	000249IN	000242IN	77	1.25	16.99	13.9	0.9	0	Flooded	-	Flooded	-	0.7	0.0	5962	0	Flooded
2	000970STMP	000252IN	000249IN	32	1.25	17.3	13.84	0.7	0.9	3.9	Flooded	0.7	Flooded	0.0	0.7	0	5962	Insufficient Freeboard
2	000974STMP	000254IN	000252IN	199	1.25	17.34	14.86	0.4	0.7	3.5	3.9	0.7	0.7	0.0	0.0	0	0	Insufficient Freeboard
2	000975STMP	000256IN	000254IN	174	1.25	14.66	11.66	0.3	0.4	Flooded	3.5	Flooded	0.7	0.1	0.0	218	0	Flooded
2	000978STMP	000257IN	000056ND	93	2.5	22.94	17.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001138STMP	000415IN	000416IN	5	1	6.68	8.91	0.8	0	Flooded	-	Flooded	1.0	0.7	0.0	2471	0	Flooded
2	001139STMP	000417IN	000457IN	175	1.25	6.68	9.28	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001140STMP	000416IN	000417IN	9	1	6.68	16.36	0	0	-	-	1.0	-	0.0	0.0	0	0	Sufficient Capacity
2	001141STMP	000418IN	000457IN	92	1.5	9.13	10.54	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001143STMP	000457IN	000419IN	37	1.5	15.25	11.32	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001144STMP	000419IN	000166SMH	34	1.5	15.26	15.62	0	0	-	-	-	1.9	0.0	0.0	0	0	Sufficient Capacity
2	001330STMP	000396SMH	000397SMH	125	3	93.9	15.69	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001331STMP	000105SMH	000396SMH	194	2.5	87.4	17.51	0.8	0	7.4	-	-	-	0.0	0.0	0	0	Surcharged
2	001333STMP	000398SMH	000399SMH	189	2.5	3.91	3.74	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001359STMP	000980IN	000338SMH	9	2	14.81	6.19	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001361STMP	000338SMH	000346SMH	68	3.5	68.27	11	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001362STMP	000339SMH	000338SMH	72	3.5	54.19	12.74	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001365STMP	000340SMH	000339SMH	61	3.5	54.11	18.57	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001366STMP	000341SMH	000340SMH	90	3.5	54.08	10.63	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001368STMP	000342SMH	000341SMH	101	3.5	53.99	10.44	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001369STMP	000348SMH	000347SMH	44	2	15.93	8.67	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001370STMP	000349SMH	000348SMH	60	1.75	15.91	13.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001452STMP	000102SMH	000103SMH	48	2	61.35	19.45	0.6	0.2	2.8	1.7	-	1.5	0.0	0.0	0	0	Surcharged
2	001462STMP	000148IN	000107SMH	52	1.25	11.37	11.82	0.1	0.1	Flooded	3.5	Flooded	0.8	0.1	0.0	103	0	Flooded
2	001463STMP	000225IN	000107SMH	46	1.25	8.22	8.41	0.1	0.1	2.9	3.5	1.3	0.8	0.0	0.0	0	0	Insufficient Freeboard
2	001464STMP	000107SMH	000109SMH	169	1.5	20.78	12.89	0.1	0.2	3.3	3.7	0.8	0.6	0.0	0.0	0	0	Insufficient Freeboard
2	001465STMP	000226IN	000108SMH	58	1.25	5.88	8.48	0.1	0.1	1.4	2.5	1.5	0.3	0.0	0.0	0	0	Insufficient Freeboard
2	001466STMP	000108SMH	000109SMH	34	1.25	6.06	9.08	0.1	0.2	2.5	3.7	0.3	0.6	0.0	0.0	0	0	Insufficient Freeboard
2	001467STMP	000228IN	000226IN	44	1.25	5.7	7.87	0.1	0.1	0.8	1.4	1.0	1.5	0.0	0.0	0	0	Insufficient Freeboard
2	001468STMP	000227IN	000228IN	10	1	6.04	11.01	0	0.1	0.1	1.1	0.4	1.0	0.0	0.0	0	0	Insufficient Freeboard
2	001532STMP	000411IN	000456IN	153	1.5	22.4	17.41	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001616STMP	000987IN	000986IN	11	1.25	14.94	11.96	0.6	0.5	Flooded	1.9	Flooded	1.5	0.1	0.0	34	0	Flooded
2	001617STMP	000986IN	000342SMH	16	1.													

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravity	Main FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
			US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
2	001829STMP	000957IN	000326SMH	31	4.5	93.87	8.46	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001830STMP	000324SMH	000957IN	35	4	93.83	7.15	0.2	0	0.4	0.4	-	-	0.0	0.0	0	0	Surcharged	
2	001832STMP	000131ND	000325SMH	88	2	53.91	16.82	0.3	0	6.9	-	-	-	0.0	0.0	0	0	Surcharged	
2	001835STMP	000959IN	000177ND	24	1.25	5.33	14.79	0	0	-	2.8	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001838STMP	000962IN	000180ND	66	1.5	7.25	13.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001839STMP	000327SMH	000962IN	27	1.25	7.25	16.08	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001840STMP	0001066IN	000327SMH	65	1.25	7.25	13.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001861STMP	000955IN	000363SMH	130	2	26.41	18.62	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001879STMP	001002IN	000354SMH	49	2.5	74.43	25.78	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001880STMP	000354SMH	000360SMH	32	2.5	74.44	24.53	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001892STMP	001012IN	001014IN	64	1.25	9.34	9.21	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001895STMP	001015IN	001014IN	217	1.5	16.64	16.44	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001896STMP	001014IN	0001062IN	119	4	89.68	13.53	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001920STMP	000360SMH	000003PD	31	3	74.4	10.5	0	45.9	1.8	RIM	-	RIM	0.0	0.3	0	0	Surcharged	
2	001922STMP	000359SMH	000344SMH	342	3.5	38.94	7.78	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001923STMP	000361SMH	000002PD	49	3	24.19	6.86	18.3	23	8.5	12.8	-	-	0.0	0.0	0	0	Surcharged	
2	001931STMP	000963IN	000364SMH	73	4	170.36	19.88	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001932STMP	0001052IN	000963IN	35	4	170.7	20.83	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001952STMP	000376SMH	000377SMH	289	1.25	12.48	10.01	0.2	0	3.4	-	1.5	-	0.0	0.0	0	0	Insufficient Freeboard	
2	001956STMP	000377SMH	000395SMH	37	2	18.11	13.65	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001958STMP	000378SMH	000176ND	122	1.5	11.68	12.94	0	0	-	3.8	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001965STMP	000383SMH	000381SMH	203	2.25	45.81	13.67	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001967STMP	0001076IN	000383SMH	42	2	40.35	20.79	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001978STMP	0001059IN	000385SMH	95	4	162.68	21.48	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001979STMP	0001054IN	001058IN	20	1.25	8.18	14.32	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001982STMP	001058IN	000385SMH	47	1.5	8.17	8.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001985STMP	000386SMH	0001059IN	81	4	155.63	20.65	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001986STMP	0001060IN	000386SMH	305	4	155.49	20.03	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001987STMP	0001061IN	0001060IN	222	4	120.93	21.79	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001988STMP	0001062IN	0001061IN	231	4	102.39	17.54	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001989STMP	001088IN	000387SMH	136	2	12.09	6.25	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001990STMP	000387SMH	0001063IN	54	2	11.56	8.4	0	0.4	0.1	3.4	-	-	0.0	0.0	0	0	Surcharged	
2	001991STMP	000388SMH	0001076IN	84	2	40.32	16.69	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001992STMP	0001073IN	000388SMH	38	2	40.3	15.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	001997STMP	000385SMH	0001052IN	30	4	170.73	22.73	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
2	003152STMP	001648IN	001647IN	66	4	4.37	0.76	0.2	0.2	2.0	1.3	1.5	-	0.0	0.0	0	0	Insufficient Freeboard	
2	005421STMP	003699IN	003703IN	62	1.5	15.36	8.63	1.3	0.6	Flooded	Flooded	Flooded	0.9	0.5	5616	2359	Flooded		
2	005422STMP	003700IN	003699IN	137	1.25	10.79	8.72	1.3	1.3	Flooded	Flooded	Flooded	1.3	0.9	4565	5616	Flooded		
2	005423STMP	003701IN	003700IN	78	1.25	9.7	7.83	1.3	1.3	Flooded	0.6	Flooded	0.0	1.3	0	4565	Insufficient Freeboard		
2	005424STMP	003702IN	003701IN	65	1.25	9.71	7.8	1.3	1.3	Flooded	2.0	Flooded	0.6	1.1	0.0	3739	0	Flooded	
2	005426STMP	003703IN	003704IN	123	1.75	15.75	7.86	0.6	0.8	Flooded	2.0	Flooded	0.0	0.5	0.0	2359	0	Flooded	
2	005427STMP	003704IN	003750IN	230	2	23.71	7.5	0.8	0.6	2.3	1.4	0.0	0.9	0.0	0	0	0	Insufficient Freeboard	
2	005428STMP	003705IN	003704IN	80	2	17.48	5.52	0.8	0.8	Flooded	2.3	Flooded	0.0	0.2	0.0	159	0	Flooded	
2	005429STMP	003706IN	003705IN	115	2	14.36	5.53	0.4	0.8	1.3	Flooded	0.7	Flooded	0.0	0.2	0</td			

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
2	005442STMP	003735IN	003736IN	130	1.5	7.38	4.16	1.4	1.4	Flooded	Flooded	Flooded	Flooded	1.4	1.3	2019	1867	Flooded
2	005510STMP	004120IN	003884IN	42	1.5	20.88	13.14	1.1	1.2	Flooded	Flooded	Flooded	Flooded	0.4	1.1	1159	7366	Flooded
2	005511STMP	003882IN	001397SMH	215	4.5	10.36	1.59	0	1.1	2.0	Flooded	-	Flooded	0.0	0.9	0	2764	Surcharged
2	005512STMP	001404SMH	001410SMH	67	3	62.7	15.74	0	0	-	0.4	-	-	0.0	0.0	0	0	Sufficient Capacity
2	005734STMP	001194SMH	001195SMH	118	1.5	13.4	8.9	0.1	0.2	0.1	0.5	-	-	0.0	0.0	0	0	Surcharged
2	005735STMP	001195SMH	001196SMH	56	2.5	55.48	13.12	0.2	0.5	1.2	1.6	-	-	0.0	0.0	0	0	Surcharged
2	005736STMP	003748IN	001195SMH	55	2	23.51	8.9	0	0.2	0.4	0.5	-	-	0.0	0.0	0	0	Surcharged
2	005737STMP	003740IN	001195SMH	6	2	19.35	6.63	0.3	0.2	0.6	0.5	-	-	0.0	0.0	0	0	Surcharged
2	005738STMP	001196SMH	001201SMH	97	2.5	55.49	11.26	0.5	0.7	1.6	1.6	-	0.9	0.0	0.0	0	0	Surcharged
2	005741STMP	003743IN	003744IN	108	1.5	3.8	4.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	005742STMP	003744IN	003748IN	202	1.5	9.92	5.66	0	0	1.2	0.9	-	-	0.0	0.0	0	0	Surcharged
2	005743STMP	001197SMH	003744IN	14	1	7.49	9.44	1.1	0	2.5	1.7	-	-	0.0	0.0	0	0	Surcharged
2	005744STMP	003746IN	003745IN	36	1	7.48	9.29	1	1.1	Flooded	3.5	Flooded	0.3	1.0	0.0	5154	0	Flooded
2	005745STMP	003745IN	001198SMH	13	1	7.48	9.34	1.1	1.1	3.5	2.8	0.3	-	0.0	0.0	0	0	Insufficient Freeboard
2	005746STMP	001198SMH	001197SMH	26	1	7.49	9.41	1.1	1.1	2.8	2.5	-	-	0.0	0.0	0	0	Surcharged
2	005747STMP	003747IN	003746IN	253	1.25	6.87	5.69	0.6	1	1.8	Flooded	0.7	Flooded	0.0	1.0	0	5154	Insufficient Freeboard
2	005748STMP	000253IO	003748IN	73	2.5	5.26	5.08	0	0	-	-	1.9	-	0.0	0.0	0	0	Sufficient Capacity
2	005749STMP	003748IN	003740IN	49	2	19.32	7.22	0	0.3	0.4	0.6	-	-	0.0	0.0	0	0	Surcharged
2	005751STMP	003750IN	003749IN	67	2	25.97	8.21	0.6	0.3	1.4	0.8	0.9	1.2	0.0	0.0	0	0	Insufficient Freeboard
2	005752STMP	003749IN	003748IN	137	2	26.04	8.3	0.3	0	1.1	0.4	1.2	-	0.0	0.0	0	0	Insufficient Freeboard
2	005753STMP	003736IN	003737IN	94	1.5	8.09	4.55	1.4	1.4	Flooded	Flooded	Flooded	1.3	1.3	1867	3865	Flooded	
2	005755STMP	003738IN	001199SMH	11	1.25	9.16	7.41	0.8	0.9	Flooded	Flooded	Flooded	0.6	0.8	2558	2461	Flooded	
2	005757STMP	003737IN	001199SMH	198	1.5	9.03	5.1	1.4	0.9	Flooded	Flooded	Flooded	1.3	0.8	3865	2461	Flooded	
2	005758STMP	001199SMH	001194SMH	96	1.25	12.3	10	0.9	0.1	Flooded	0.4	Flooded	-	0.8	0.0	2461	0	Flooded
2	005762STMP	003754IN	003756IN	83	2	19.07	15.06	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	005764STMP	003757IN	003754IN	83	1.5	9.53	9.36	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	005766STMP	003756IN	000476ND	51	2	19.08	6.73	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	005767STMP	003758IN	003757IN	53	1.5	9.52	5.53	0.2	0	0.3	-	-	-	0.0	0.0	0	0	Surcharged
2	005768STMP	003759IN	003758IN	37	1.5	9.51	5.59	0	0.2	-	0.3	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006165STMP	004218IN	001419SMH	95	2	10.9	11.06	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006167STMP	004193IN	004192IN	79	1.5	20.82	11.71	0.9	0	1.6	-	-	-	0.0	0.0	0	0	Surcharged
2	006168STMP	004198IN	004193IN	51	1.5	20.82	17.67	0	0.9	-	1.6	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006170STMP	001416SMH	004216IN	138	1.5	27.65	15.42	0.6	0	3.9	-	-	-	0.0	0.0	0	0	Surcharged
2	006171STMP	004215IN	001416SMH	87	1.25	14.58	13.9	0.6	0.6	1.7	4.1	1.4	-	0.0	0.0	0	0	Insufficient Freeboard
2	006172STMP	001423SMH	001422SMH	210	1.5	8.52	12.57	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006173STMP	004224IN	004223IN	63	1.25	4.87	10.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006174STMP	004223IN	001422SMH	62	1.25	4.87	12.22	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006176STMP	001422SMH	001399SMH	115	1.5	13.38	14.6	0	0.1	-	2.0	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006179STMP	004227IN	001410SMH	198	6	375.81	18.62	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006274STMP	003884IN	001397SMH	38	2	16.5	5.17	1.2	1.1	Flooded	Flooded	Flooded	Flooded	1.1	0.9	7366	2764	Flooded
2	006275STMP	001397SMH	001398SMH	3	1	15.99	19.58	1.1	1.1	Flooded	4.2	Flooded	-	0.9	0.0	2764	0	Flooded
2	006277STMP	001399SMH	001400SMH	149	1.5	31.77	17.66	0.1	0	6.8	4.0	-	-	0.0	0.0	0	0	Surcharged
2	006278STMP	001400SMH	001401SMH	225	1.5	31.74	17.79	0	0	4.5	-	-	-	0.0	0.0	0	0	Surcharged
2																		

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
2	006289STMP	004168IN	001411SMH	293	1.25	11.23	12.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006320STMP	001405SMH	001404SMH	58	2	9.62	11.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006322STMP	004118IN	000436ND	23	2	40.81	12.97	0.1	0	0.6	-	-	-	0.0	0.0	0	0	Surcharged
2	006323STMP	004228IN	004119IN	33	2	31.28	16.55	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006324STMP	000291IO	004119IN	14	1.25	5.04	14.01	0	0	-	-	1.3	-	0.0	0.0	0	0	Sufficient Capacity
2	006328STMP	001398SMH	001399SMH	113	1.5	15.98	9.04	1.1	0.1	3.7	4.2	-	-	0.0	0.0	0	0	Surcharged
2	006330STMP	004109IN	004108IN	38	1.5	10.92	15.78	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006332STMP	004116IN	001405SMH	32	1.25	9.64	9.29	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006334STMP	004113IN	001401SMH	33	1.25	7.76	12.91	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006335STMP	004112IN	001401SMH	28	1.5	3.83	11.09	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006336STMP	004108IN	004111IN	48	2	10.93	10.36	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006342STMP	004164IN	001413SMH	23	1.5	25.65	14.33	0.9	0.9	Flooded	Flooded	Flooded	Flooded	0.9	0.7	13453	4527	Flooded
2	006366STMP	001494SMH	004603IN	13	2	32.81	10.7	0	0	0.0	-	-	-	0.0	0.0	0	0	Surcharged
2	006372STMP	004597IN	004598IN	111	1.5	14.65	8.24	0.6	0.6	1.9	Flooded	0.2	Flooded	0.0	0.3	0	314	Insufficient Freeboard
2	006374A	004606IN	000573ND	25	1.75	7.3	6.56	0	0	-	-	-	-	1.4	0.0	0.0	0	Sufficient Capacity
2	006374B	000573ND	004599IN	82	1.75	7.19	5.28	0	0.4	-	1.1	1.4	1.1	0.0	0.0	0	0	Sufficient Capacity
2	006375STMP	004599IN	004600IN	38	1.75	21.04	8.76	0.4	0.4	1.1	0.7	1.1	1.7	0.0	0.0	0	0	Insufficient Freeboard
2	006376STMP	004600IN	001481SMH	59	1.58 x 2.5	22.81	12.59	0.4	0	1.0	-	1.7	-	0.0	0.0	0	0	Insufficient Freeboard
2	006377STMP	004598IN	004599IN	81	1.5	16.21	9.11	0.6	0.4	Flooded	1.3	Flooded	1.1	0.3	0.0	314	0	Flooded
2	006378STMP	004596IN	004597IN	62	1.5	14.64	8.2	0.6	0.6	Flooded	1.9	Flooded	0.2	0.6	0.0	3816	0	Flooded
2	006379STMP	004592IN	004596IN	162	1.25	6.81	6.25	0.6	0.6	2.2	Flooded	0.8	Flooded	0.0	0.6	0	3816	Insufficient Freeboard
2	006386STMP	004595IN	004592IN	30	1.25	6.84	5.51	0.6	0.6	Flooded	2.2	Flooded	0.8	0.5	0.0	1571	0	Flooded
2	006429STMP	001489SMH	001494SMH	131	2	32.83	10.42	0.1	0	1.2	0.0	1.6	-	0.0	0.0	0	0	Insufficient Freeboard
2	006430STMP	001490SMH	001489SMH	460	2	12.77	9.13	0	0.1	-	1.2	-	1.6	0.0	0.0	0	0	Sufficient Capacity
2	006437STMP	001496SMH	004651IN	152	2	27.83	16.64	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006438STMP	001497SMH	004651IN	153	2	35.87	17.56	0	0	-	-	1.9	-	0.0	0.0	0	0	Sufficient Capacity
2	006439STMP	001481SMH	001496SMH	223	2	22.81	15.24	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006440STMP	004603IN	001497SMH	229	2	32.85	16.56	0	0	-	-	-	1.9	0.0	0.0	0	0	Sufficient Capacity
2	006509STMP	001411SMH	000294IO	51	3	50.7	23.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006510STMP	004160IN	001404SMH	89	1.25	3.9	8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006516STMP	004148IN	004149IN	8	1	6.45	8.63	0.2	0	Flooded	-	Flooded	1.0	0.1	0.0	90	0	Flooded
2	006517STMP	004149IN	004150IN	8	1	6.45	16.97	0	0	-	-	1.0	-	0.0	0.0	0	0	Sufficient Capacity
2	006522STMP	001410SMH	000294IO	408	6	348.77	21.04	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006522STMP	001410SMH	000294IO	408	5	184.69	12.93	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006523STMP	004152IN	001408SMH	67	3	10.53	8.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006524STMP	004151IN	004152IN	7	1	10.53	29.61	0	0	-	-	1.1	-	0.0	0.0	0	0	Sufficient Capacity
2	006526STMP	001408SMH	001409SMH	288	4	88.8	18.71	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006527STMP	004150IN	004147IN	118	1.25	6.45	12.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006528STMP	004147IN	001407SMH	51	1.25	6.45	9.15	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006529STMP	004122IN	001407SMH	70	2.5	71.98	14.63	0	0	0.6	-	-	-	0.0	0.0	0	0	Surcharged
2	006530STMP	001406SMH	004122IN	148	2.5	61.85	12.52	0	0	1.7	0.6	-	-	0.0	0.0	0	0	Surcharged
2	006535STMP	004061SMH	001418SMH	312	5	280.62	19.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006536STMP	004219IN	004227IN	83	5.5	369.6	19.96	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006538STMP	004111IN	004218IN	201	2	10.9	13.26	0	0	-	-	-	-	0.0	0			

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
2	006546STMP	001420SMH	004219IN	74	5.5	368.89	21.14	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006547STMP	001418SMH	001419SMH	183	5	280.31	14.58	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006548STMP	001419SMH	001420SMH	107	5.5	359.94	17.97	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006552STMP	004192IN	001406SMH	155	2.5	61.81	12.5	0	0	3.0	1.7	-	-	0.0	0.0	0	0	Surcharged
2	006553STMP	004197IN	004198IN	107	1.25	20.82	17.64	0.9	0	Flooded	-	Flooded	-	0.9	0.0	16565	0	Flooded
2	006554STMP	004212IN	001416SMH	110	1.25	16.76	14.35	0.6	0.6	Flooded	4.1	Flooded	-	0.5	0.0	2820	0	Flooded
2	006555STMP	004216IN	001417SMH	188	2.5	33.53	7.92	0	0	2.0	2.1	-	-	0.0	0.0	0	0	Surcharged
2	006557STMP	004199IN	004200IN	6	1	8.63	11.18	0.8	0	Flooded	-	Flooded	0.8	0.8	0.0	5742	0	Flooded
2	006558STMP	004200IN	004201IN	12	1	8.63	16.11	0	0	-	-	0.8	-	0.0	0.0	0	0	Sufficient Capacity
2	006567STMP	004213IN	004212IN	148	1.25	11.32	10.26	0.5	0.6	Flooded	Flooded	Flooded	Flooded	0.4	0.5	1318	2820	Flooded
2	006568STMP	000197SMH	004228IN	393	2	31.28	17.56	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006672STMP	004613IN	004657IN	108	3	112.57	19.65	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006673STMP	004633IN	001484SMH	182	1.5	12.87	9.41	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006674STMP	004656IN	004623IN	128	1.25	5.12	12.29	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006677STMP	004625IN	004623IN	162	1.25	4.05	6.03	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006678STMP	004623IN	001485SMH	127	1.5	9.14	10.89	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006679STMP	001485SMH	004629IN	110	1.5	9.13	9.66	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006680STMP	004629IN	000320IO	140	1.5	15.61	12.18	0	0	-	-	-	-	1.7	0.0	0	0	Sufficient Capacity
2	006681STMP	004615IN	001482SMH	137	3	90.48	15.46	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006682STMP	004614IN	004610IN	97	1.5	22.24	16.82	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006683STMP	000319IO	004620IN	108	2.75	78.23	19.13	0	0	-	-	1.2	-	0.0	0.0	0	0	Sufficient Capacity
2	006684STMP	001483SMH	004615IN	46	3	90.46	14.38	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006686STMP	004620IN	001483SMH	69	3	78.25	14.19	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006689STMP	001482SMH	004610IN	56	3	90.49	16.17	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006690STMP	004610IN	004613IN	45	3	112.54	19.54	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006691STMP	004622IN	004614IN	58	1.5	16.66	9.64	0.2	0	0.7	-	-	-	0.0	0.0	0	0	Surcharged
2	006692STMP	001484SMH	004622IN	84	1.5	16.65	15.93	0	0.2	-	0.7	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006693STMP	004632IN	004633IN	59	1.5	12.86	15.94	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006694STMP	001487SMH	000321IO	28	2.5	55.45	11.92	0	0	0.8	-	-	-	0.0	0.0	0	0	Surcharged
2	006695STMP	001486SMH	001487SMH	68	5	55.45	7.03	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006697STMP	004642IN	001491SMH	53	2	12.83	7.38	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006699STMP	001498SMH	004645IN	22	2.5	62.65	12.21	0.3	0	0.3	0.1	1.4	-	0.0	0.0	0	0	Insufficient Freeboard
2	006700STMP	004649IN	001492SMH	111	1.25	17.31	16.87	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006701STMP	004650IN	004052SMH	121	4.5	233.41	17.68	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006703STMP	004647IN	004649IN	104	1.25	17.32	16.27	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006706STMP	004651IN	004646IN	229	4	186.3	15.76	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006709STMP	004643IN	004642IN	63	1	5.08	8.83	0	0	-	-	1.9	-	0.0	0.0	0	0	Sufficient Capacity
2	006710STMP	004640IN	004642IN	218	1.5	7.73	7.96	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006711STMP	001491SMH	001490SMH	96	2	12.82	12.84	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006712STMP	001492SMH	001493SMH	115	4	210.88	22.37	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006713STMP	004646IN	001492SMH	79	4	194.11	24.71	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006714STMP	001493SMH	004650IN	163	4.5	224.55	22.59	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	006954STMP	005030IN	004215IN	52	1.25	13.76	11.32	1.2	0.6	3.4	1.7	0.1	1.4	0.0	0.0	0	0	Insufficient Freeboard
2	010541STMP	000162CB	001183ND	159	1.25	5.06	6.25	0.9	1.3	2.5	6.0	0.1	0.6	0.0	0.0	0	0	Insufficient Freeboard
2	014066STMP	0																

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
2	014101STMP	000325SMH	004046SMH	57	3	53.98	7.47	0	0.2	0.4	1.1	-	-	0.0	0.0	0	0	Surcharged
2	014102STMP	004046SMH	000324SMH	69	3.5	54.04	5.36	0.2	0.2	0.6	0.6	-	-	0.0	0.0	0	0	Surcharged
2	014127STMP	000456IN	004030SMH	35	2	8.68	8.89	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014128STMP	004030SMH	000197SMH	57	2	8.68	12.26	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014130STMP	004028SMH	001498SMH	113	2.5	62.65	12.68	0	0.3	0.9	0.3	-	1.4	0.0	0.0	0	0	Surcharged
2	014131STMP	001201SMH	004028SMH	114	2.5	62.65	12.71	0.7	0	1.8	-	0.9	-	0.0	0.0	0	0	Insufficient Freeboard
2	014132STMP	004657IN	009003IN	32	3	121.82	17.06	0	0	0.1	0.1	-	-	0.0	0.0	0	0	Surcharged
2	014133STMP	009003IN	004658IN	158	3	121.73	20.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014134STMP	004658IN	004651IN	140	3.5	121.91	13.23	0	0	0.1	0.4	-	-	0.0	0.0	0	0	Surcharged
2	014135STMP	000100SMH	000062ND	26	1.75	59.36	23.9	0.7	0.7	Flooded	7.3	Flooded	1.4	0.5	0.0	14085	0	Flooded
2	014136STMP	000062ND	000099SMH	55	2	57.24	17.91	0.7	0.7	7.0	7.2	1.4	0.4	0.0	0.0	0	0	Insufficient Freeboard
2	014284STMP	000381SMH	000179ND	37	2.25	45.75	13.69	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014285STMP	000179ND	000176ND	24	2.25	45.51	13.71	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014286STMP	001417SMH	000524ND	147	2.5	33.46	7.64	0	0.5	2.3	2.3	-	-	0.0	0.0	0	0	Surcharged
2	014287STMP	000524ND	004192IN	112	2.5	41.39	9.01	0.5	0	2.5	3.0	-	-	0.0	0.0	0	0	Surcharged
2	014289STMP	001407SMH	000520ND	138	2.5	78.42	19.17	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014290STMP	000520ND	001408SMH	74	2.5	78.42	19.21	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014354STMP	000364SMH	000180ND	262	5	314.49	16.01	0	0	2.3	-	-	-	0.0	0.0	0	0	Surcharged
2	014355STMP	000180ND	000326SMH	122	7	317.74	17.78	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014359STMP	000176ND	000395SMH	82	5 x 5	468.91	19.86	0	0	0.3	-	-	-	0.0	0.0	0	0	Surcharged
2	014361STMP	000456IN	000197SMH	90	2	13.73	13.48	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014368STMP	000367SMH	004051SMH	38	2	15.91	6.14	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014369STMP	004051SMH	000955IN	97	2	15.93	12.95	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014372STMP	000104SMH	002012ND	64	3	87.4	12.2	0.3	0.6	6.6	5.8	-	-	0.0	0.0	0	0	Surcharged
2	014373STMP	002012ND	000105SMH	75	2.5	87.4	17.37	0.6	0.8	10.1	7.2	-	-	0.0	0.0	0	0	Surcharged
2	014374STMP	000399SMH	000181ND	40	3	40.55	6.81	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014375STMP	000399SMH	002011ND	36	5	64.67	7.03	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014380A	000057ND	000104SMH	78	3	87.41	15.26	0.5	0.3	4.7	5.2	1.8	-	0.0	0.0	0	0	Insufficient Freeboard
2	014380B	000103SMH	000057ND	68	3	87.52	18.42	0.2	0.5	3.0	4.7	1.5	1.8	0.0	0.0	0	0	Insufficient Freeboard
2	014387A	000326SMH	000177ND	80	6 x 9.42	408.93	17.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014387B	000177ND	000176ND	76	9.417 x 6	413.87	12.56	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014399STMP	002880ND	000363SMH	351	5	224.7	16.17	0	0	-	1.2	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014400STMP	002881ND	002880ND	214	5	224.22	17.82	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014401STMP	000056ND	002881ND	144	2.5	22.91	10.54	0	0	-	0.6	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014402STMP	000054ND	000131ND	213	2.5	53.88	20.53	0	0.3	-	3.8	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014403STMP	007118IN	000605IO	410	3.25 x 5.42	110.53	6.81	2.5	0	0.4	-	1.4	1.1	0.0	0.0	0	0	Insufficient Freeboard
2	014404STMP	007118IN	000606IO	410	3.25 x 5.42	110.22	6.79	2.5	0	0.4	-	1.4	1.1	0.0	0.0	0	0	Insufficient Freeboard
2	014407STMP	009062IN	002881ND	98	5.5	202.68	18.21	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014417STMP	Node2640	009061IN	151	5.5	202.66	19.52	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014418STMP	009061IN	009062IN	191	5.5	202.67	19.37	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014420STMP	000476ND	000605IO	342	2	19.08	10.76	0	0	-	-	-	1.4	0.0	0.0	0	0	Sufficient Capacity
2	014421STMP	Node2637	Node2639	150	5	16.44	1.36	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	Link356	000031IO	000030IO	5	1.75	9.71	7.92	0	0	-	-	1.4	1.8	0.0	0.0	0	0	Sufficient Capacity
2	Link357	000003CD	000361SMH	244	1.75	24.27	9.9	13	18.3	8.0	8.3	0.3</td						

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
3	000530STMP	000138SMH	000072ND	49	1.25	6.28	4.97	0	0.7	5.7	6.0	-	-	0.0	0.0	0	0	Surcharged
3	000535STMP	000139SMH	000346IN	36	1.25	4.3	4.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000542STMP	000140SMH	000175SMH	25	3	82.23	11.57	0.7	0	2.8	2.6	-	-	0.0	0.0	0	0	Surcharged
3	000543STMP	000346IN	000140SMH	8	1.5	7.16	4.03	0	0.7	2.9	3.1	-	-	0.0	0.0	0	0	Surcharged
3	000549STMP	000351IN	000142SMH	54	1.25	8.13	13.56	0	0	-	1.4	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000550STMP	000352IN	000351IN	8	1	8.13	12.45	0	0	-	-	0.7	-	0.0	0.0	0	0	Sufficient Capacity
3	000552STMP	000142SMH	000143SMH	190	2.5	63.49	14.53	0	0.1	0.1	0.3	-	-	0.0	0.0	0	0	Surcharged
3	000553STMP	000143SMH	000144SMH	117	2.5	73.67	16	0.1	0.1	0.3	0.3	-	-	0.0	0.0	0	0	Surcharged
3	000558STMP	000181SMH	000182SMH	33	4	115.46	15.67	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000586STMP	000476IN	000465IN	255	1.5	24.95	13.65	0.4	0.5	Flooded	6.4	Flooded	-	0.4	0.0	3476	0	Flooded
3	000589STMP	000145SMH	000181SMH	48	2.5	73.69	28.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000590STMP	000196SMH	000477IN	428	3	82.18	12.11	0	0	1.8	-	-	-	0.0	0.0	0	0	Surcharged
3	000591STMP	000477IN	000483IN	129	3	104.03	24.95	0	0	-	1.7	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000636STMP	000331IN	000135SMH	39	1	4.44	10.48	0.6	0.6	1.1	3.9	0.3	0.8	0.0	0.0	0	0	Insufficient Freeboard
3	000637STMP	000185SMH	000136SMH	129	3	77.29	10.81	0.7	0.7	Flooded	Flooded	Flooded	Flooded	0.5	0.6	3636	13263	Flooded
3	000638STMP	000332IN	000331IN	10	1	4.46	7.82	0.4	0.6	Flooded	1.1	Flooded	0.3	0.3	0.0	190	0	Flooded
3	000641STMP	000137SMH	000073ND	58	1.25	9.47	10.43	0.6	0.7	1.5	6.5	1.6	-	0.0	0.0	0	0	Insufficient Freeboard
3	000642STMP	000336IN	000137SMH	33	1.25	9.47	11.88	0.1	0.6	0.2	1.5	0.8	1.6	0.0	0.0	0	0	Insufficient Freeboard
3	000708STMP	000161SMH	000399IN	94	2.5	43.86	15.86	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000712STMP	000399IN	000162SMH	293	2.5	43.82	15.94	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000713STMP	000162SMH	000401IN	60	2.5	52.31	16.24	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000714STMP	000163SMH	000023IO	30	3	52.25	14.42	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000715STMP	000401IN	000163SMH	156	3	52.24	10.05	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000717STMP	000404IN	000164SMH	113	2.5	48.06	10.19	0.2	0.5	0.1	0.7	-	-	0.0	0.0	0	0	Surcharged
3	000718STMP	000403IN	000404IN	8	1	3.74	16.25	0	0.2	-	1.6	1.2	-	0.0	0.0	0	0	Sufficient Capacity
3	000719STMP	000164SMH	000001PD	55	2.5	58.03	11.83	0.5	0	0.7	-	-	-	0.0	0.0	0	0	Surcharged
3	000720STMP	000165SMH	000404IN	131	2.5	45.09	9.28	0	0.2	0.5	0.1	-	-	0.0	0.0	0	0	Surcharged
3	000722STMP	000406IN	000026IO	64	1.25	4.95	12.27	0	0	-	-	1.3	0.8	0.0	0.0	0	0	Sufficient Capacity
3	000723STMP	000412IN	000027IO	238	1.5	14.73	11.46	0	0	-	-	0.9	0.0	0.0	0	0	0	Sufficient Capacity
3	000852STMP	000122SMH	000126SMH	65	2	34.47	15.61	0.2	0.3	2.4	4.3	-	0.7	0.0	0.0	0	0	Surcharged
3	001044STMP	000153SMH	000152SMH	40	2	34.2	20.33	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001045STMP	000154SMH	000153SMH	23	2	34.19	10.88	0	0	0.8	-	-	-	0.0	0.0	0	0	Surcharged
3	001046STMP	000157SMH	000154SMH	232	2	26.58	13.69	0	0	-	0.8	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001049STMP	000379IN	000380IN	9	1	7.96	10.06	0.8	0.8	Flooded	0.8	Flooded	0.8	0.7	0.0	4320	0	Flooded
3	001050STMP	000380IN	000154SMH	29	1	7.96	10.08	0.8	0	0.8	-	0.8	-	0.0	0.0	0	0	Insufficient Freeboard
3	001053STMP	000383IN	000384IN	10	1	13.3	17.93	0.1	0.3	Flooded	1.2	Flooded	-	0.0	0.0	4	0	Flooded
3	001054STMP	000384IN	000155SMH	25	1.25	13.33	11.17	0.3	0	0.9	-	-	0.0	0.0	0	0	Surcharged	
3	001055STMP	000386IN	000194SMH	111	1.5	19.15	13.56	0	0	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
3	001135STMP	000414IN	000412IN	63	1.5	5.66	6.66	0	0	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
3	001137STMP	000035IO	000414IN	10	1.25	5.65	5.71	0	0	-	-	1.7	-	0.0	0.0	0	0	Sufficient Capacity
3	001163STMP	000182SMH	000483IN	204	4	115.93	13.52	0	0	-	2.6	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001164STMP	000483IN	000079ND	124	4	219.88	17.43	0	0	2.7	-	-	-	0.0	0.0	0	0	Surcharged
3	001188STMP	000330IN	000185SMH	90	2.5	30.44	8.06	0.7	0.7	5.2	Flooded	0.7	Flooded	0.0	0.5	0	3636	Insufficient Freeboard
3	001189STMP	000136SMH	000335IN	142	3													

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
3	001207STMP	000472IN	000189SMH	86	2.5	21.95	7.13	0.6	0.7	4.2	Flooded	1.5	Flooded	0.0	0.0	0	1	Insufficient Freeboard
3	001208STMP	000191SMH	000472IN	166	2.5	19.44	6.86	0.6	0.6	3.0	4.2	2.0	1.5	0.0	0.0	0	0	Insufficient Freeboard
3	001216STMP	000189SMH	000330IN	110	2.5	24.77	6.31	0.7	0.7	Flooded	5.2	Flooded	0.7	0.0	0.0	1	0	Flooded
3	001219STMP	000194SMH	000476IN	150	1.5	19.02	14.6	0	0.4	-	Flooded	-	Flooded	0.0	0.4	0	3476	Sufficient Capacity
3	001459STMP	000145IN	000146IN	51	1.5	21.29	11.94	0.7	0	Flooded	0.7	Flooded	1.8	0.7	0.0	7649	0	Flooded
3	001460STMP	000021IO	000146IN	258	2	14.5	8.82	0	0	-	0.2	1.4	1.8	0.0	0.0	0	0	Sufficient Capacity
3	001484STMP	000130SMH	000133SMH	13	1.25	16.81	13.26	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.4	0.3	3452	4114	Flooded
3	001488STMP	000131SMH	000133SMH	63	2.5	49.49	11.04	0.5	0.6	5.5	Flooded	0.6	Flooded	0.0	0.3	0	4114	Insufficient Freeboard
3	001495STMP	000132SMH	000133SMH	13	1.25	4.84	5.14	0.6	0.6	6.2	Flooded	0.2	Flooded	0.0	0.3	0	4114	Insufficient Freeboard
3	001496STMP	000133SMH	000134SMH	185	2.5	54.68	11.05	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.3	0.5	4114	3884	Flooded
3	001503STMP	000134SMH	000184SMH	26	2.5	54.23	10.89	0.6	0.7	Flooded	Flooded	Flooded	Flooded	0.5	0.0	3884	3	Flooded
3	001504STMP	000135SMH	000136SMH	41	1.25	10.01	8.12	0.6	0.7	3.6	Flooded	0.8	Flooded	0.0	0.6	0	13263	Insufficient Freeboard
3	001505STMP	000146SMH	000142SMH	275	2.5	55.7	15.33	0	0	-	0.1	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001506STMP	000147SMH	000146SMH	38	2.5	55.85	15.08	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001507STMP	000150SMH	000147SMH	210	2	51.28	17.33	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001527STMP	000152SMH	000151SMH	81	2	34.2	19.29	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001537STMP	000426IN	000168SMH	49	1.5	15.93	11.87	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001540STMP	000402IN	000024IO	153	1	5.57	8.01	0.2	0	Flooded	-	Flooded	-	0.2	0.0	109	0	Flooded
3	001542STMP	000429IN	000430IN	46	1.5	16.63	13.21	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001543STMP	000430IN	000431IN	297	1.25	16.39	14.22	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001544STMP	000434IN	000431IN	40	1.25	3.93	12.49	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001545STMP	000431IN	000432IN	76	1.75	20.26	14.22	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001546STMP	000432IN	000169SMH	43	1.75	24.45	14.37	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001547STMP	000169SMH	000433IN	100	2.5	24.5	8.26	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001548STMP	000433IN	000071ND	48	2.5	31.07	27.51	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001559STMP	000171SMH	000174SMH	131	1.5	15.74	11.85	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001561STMP	000177SMH	000172SMH	91	3	78.49	15.14	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001562STMP	000440IN	000172SMH	107	1.25	6.2	13.26	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001564STMP	000465IN	000174SMH	48	1.5	24.98	13.91	0.5	0	6.4	7.5	-	-	0.0	0.0	0	0	Surcharged
3	001566STMP	000117SMH	000119SMH	167	1.5	20.61	15.52	0	0.1	-	Flooded	-	Flooded	0.0	0.1	0	224	Sufficient Capacity
3	001568STMP	000159SMH	000157SMH	31	2	26.57	12.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001569STMP	000453IN	000159SMH	118	2	26.55	8.49	0.1	0	0.1	-	1.4	-	0.0	0.0	0	0	Insufficient Freeboard
3	001570STMP	000391IN	000452IN	121	3	42.11	10.25	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001571STMP	000484IN	000391IN	257	2.25	24.34	9.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001572STMP	000452IN	000392IN	42	3	42.16	10.17	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001573STMP	000392IN	000393IN	218	3	48.38	10.27	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001574STMP	000393IN	000454IN	132	2.5	34.44	9.89	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001575STMP	000454IN	000395IN	110	2.5	34.51	11.42	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001576STMP	000395IN	000160SMH	108	2.5	43.73	12.11	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001577STMP	000160SMH	000161SMH	100	2.5	43.8	15.61	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001578STMP	000168SMH	000405IN	145	1.5	15.91	18.52	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001579STMP	000405IN	000165SMH	140	1.5	15.92	17.53	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001583STMP	000172SMH	000173SMH	83	3.5	80.94	11.85	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001584STMP	000173SMH	000180SMH	142	3.5													

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition	
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS		
3	005769STMP	003760IN	000484IN	67	1.5	7.06	11.43	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
3	005770STMP	003761IN	000484IN	327	2	11.42	8.37	0	0	-	-	0.7	-	-	0.0	0.0	0	0	Sufficient Capacity
3	006290STMP	004185IN	000437ND	40	1.5	15.24	18.69	0	0	-	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	006291STMP	004187IN	004188IN	37	1.25	15.6	12.58	0.2	0.2	Flooded	3.4	Flooded	1.0	0.2	0.0	532	0	0	Flooded
3	006293STMP	004188IN	004185IN	252	1.25	15.24	12.75	0.2	0	3.4	-	1.0	-	0.0	0.0	0	0	0	Insufficient Freeboard
3	014079STMP	000180SMH	002023ND	9	4	111.54	12.63	0	0	-	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	014138STMP	000151SMH	000069ND	44	2	34.21	18.37	0	0	-	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	014139STMP	000069ND	000070ND	119	2	41.45	16.37	0	0	-	2.9	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	014140STMP	000070ND	000150SMH	72	2	41.44	13.12	0	0	2.9	-	-	-	-	0.0	0.0	0	0	Surcharged
3	014144STMP	000065ND	000122SMH	190	1.5	30.94	17.82	0.1	0.2	Flooded	2.5	Flooded	-	0.1	0.0	19	0	0	Flooded
3	014145STMP	000119SMH	000065ND	48	1.5	23.51	15.63	0.1	0.1	Flooded	Flooded	Flooded	Flooded	0.1	0.1	224	19	0	Flooded
3	014381A	000335IN	000073ND	94	3	72.86	10.2	0.7	0.7	Flooded	4.7	Flooded	-	0.6	0.0	3869	0	0	Flooded
3	014381B	000073ND	000072ND	58	3	75.33	10.56	0.7	0.7	4.7	4.3	-	-	0.0	0.0	0	0	0	Surcharged
3	014381C	000072ND	000140SMH	154	3	79.09	11.11	0.7	0.7	4.3	2.8	-	-	0.0	0.0	0	0	0	Surcharged
4	006418STMP	005032IN	005031IN	61	1.25	7.37	8.59	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	006419STMP	005031IN	005033IN	184	1.25	7.35	10.02	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	007055STMP	005039IN	000391ND	182	1.5	16.87	11.23	0.1	0.1	1.1	2.2	-	-	0.0	0.0	0	0	0	Surcharged
4	007306STMP	005033IN	002273SMH	184	1	14.02	26.04	0	0.1	-	Flooded	-	Flooded	0.0	0.1	0	47	0	Sufficient Capacity
4	009649STMP	002322SMH	000361CB	213	1.25	18.84	14.88	0.3	1.1	6.6	Flooded	0.1	Flooded	0.0	0.7	0	4666	0	Insufficient Freeboard
4	009650STMP	002323SMH	002322SMH	12	1.25	19.12	14.98	0.3	0.3	Flooded	6.6	Flooded	0.1	0.2	0.0	370	0	0	Flooded
4	009983STMP	000359CB	000357CB	42	1.25	8.87	12.9	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	009984STMP	000357CB	002846SMH	53	1.5	8.88	7.59	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	009986STMP	008867IN	000359CB	141	1	8.87	14.5	0	0	-	-	2.0	-	0.0	0.0	0	0	0	Sufficient Capacity
4	011084STMP	002841SMH	002840SMH	26	1.25	10.58	8.42	1.1	1.1	Flooded	Flooded	Flooded	Flooded	1.0	0.7	7180	1024	0	Flooded
4	011087A	002840SMH	001364ND	163	1.5	13.99	7.79	1.1	1.5	Flooded	3.0	Flooded	-	0.7	0.0	1024	0	0	Flooded
4	011087B	001364ND	001365ND	119	1.5	14	7.81	1.5	1	3.0	0.5	-	-	0.0	0.0	0	0	0	Surcharged
4	011087C	001365ND	002839SMH	81	1.5	14.04	8.09	1	0.6	0.5	0.3	-	-	0.0	0.0	0	0	0	Surcharged
4	011148STMP	008766IN	002775SMH	38	1	5.31	11.69	0.1	0.4	0.3	2.7	-	-	0.0	0.0	0	0	0	Surcharged
4	011149STMP	008767IN	008766IN	158	0.833	5.28	9.54	0.5	0.1	Flooded	0.5	Flooded	-	0.4	0.0	766	0	0	Flooded
4	011277STMP	000361CB	002841SMH	31	1.25	13.36	10.67	1.1	1.1	Flooded	Flooded	Flooded	Flooded	0.7	1.0	4666	7180	0	Flooded
4	011490STMP	000368CB	001387ND	58	1.5	13.49	12.48	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	011499STMP	007454IN	001388ND	154	1.25	14.96	13.95	0	0	-	-	0.7	-	0.0	0.0	0	0	0	Sufficient Capacity
4	011506STMP	002784SMH	007458IN	61	1.5	13.16	25.08	0	0	-	-	1.5	-	0.0	0.0	0	0	0	Sufficient Capacity
4	011507STMP	002835SMH	000463IO	29	3.5	73.11	12.51	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	011512STMP	002818SMH	002817SMH	239	4.5	290.85	26.79	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	011513STMP	007458IN	007416IN	68	1.5	13.17	14.37	0	0.5	-	1.7	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	011514STMP	007416IN	002818SMH	27	1.25	13.17	10.62	0.5	0	2.0	1.6	-	-	0.0	0.0	0	0	0	Surcharged
4	011515STMP	002270SMH	002818SMH	315	4.5	264.66	22.5	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	011575STMP	002845SMH	002314SMH	148	2.5	42.26	16.79	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	011689STMP	008770IN	001394ND	142	1	6.74	11.25	0	0	-	1.9	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	011690STMP	008771IN	001267ND	27	1	7.7	9.59	1	0	3.6	2.4	-	-	0.0	0.0	0	0	0	Surcharged
4	011691STMP	001267ND	002776SMH	204	4.5	174.43	13.67	0	0	-	-	-	-	0.0	0.0	0			

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
4	011944B	001327ND	002306SMH	103	1.25	15.28	13.26	0.1	0	0.7	-	-	-	0.0	0.0	0	0	Surcharged
4	011945A	002307SMH	001326ND	217	1.25	6.21	10.17	0	0.1	-	2.5	-	-	0.0	0.0	0	0	Sufficient Capacity
4	011945B	001326ND	002308SMH	27	1.25	15.64	12.6	0.1	0.1	2.5	2.0	-	-	0.0	0.0	0	0	Surcharged
4	011953STMP	008758IN	001333ND	86	0.833	6.51	11.53	0.3	0	5.1	1.4	1.3	-	0.0	0.0	0	0	Insufficient Freeboard
4	011957STMP	001312ND	002775SMH	96	0.833	4.01	10.51	0	0.4	-	2.9	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012003STMP	002227SMH	001267ND	45	4.5	167.35	13.41	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012027STMP	008765IN	001266ND	149	1	3.54	5.04	0.3	0.9	Flooded	4.0	Flooded	1.2	0.2	0.0	126	0	Flooded
4	012092STMP	007040IN	001279ND	50	1	4.12	9.78	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012093A	002256SMH	001279ND	12	1.5	16.38	11.52	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012093B	001279ND	001280ND	214	1.5	20.39	16.24	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012093C	001280ND	001286ND	20	1.5	20.4	14.13	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012093D	001286ND	002257SMH	38	1.5	20.4	16.45	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012094A	002257SMH	001281ND	145	1.75	31.4	21.11	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012094B	001281ND	001300ND	24	1.75	31.41	19.44	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012094C	001300ND	001301ND	92	1.75	31.41	21.01	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012094D	001301ND	002258SMH	22	1.75	31.39	18.05	0	0	-	0.1	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012097A	002258SMH	001282ND	27	1.75	45.63	22.47	0	0	0.1	0.6	-	-	0.0	0.0	0	0	Surcharged
4	012097B	001282ND	001285ND	50	1.75	45.46	23.58	0	0.1	0.6	1.8	-	-	0.0	0.0	0	0	Surcharged
4	012097C	001285ND	001284ND	71	1.75	44.67	23.39	0.1	0.1	1.8	3.6	-	-	0.0	0.0	0	0	Surcharged
4	012097D	001284ND	001283ND	70	1.75	44.19	22.86	0.1	0.1	3.6	5.5	-	1.9	0.0	0.0	0	0	Surcharged
4	012097E	001283ND	001287ND	52	1.75	48.93	22.51	0.1	0.2	5.5	6.1	1.9	0.9	0.0	0.0	0	0	Insufficient Freeboard
4	012097F	001287ND	002266SMH	15	1.75	48.82	19.87	0.2	0.1	6.1	4.9	0.9	-	0.0	0.0	0	0	Insufficient Freeboard
4	012099STMP	007044IN	001283ND	13	1	5.22	7.86	0.1	0.1	5.4	6.3	1.7	1.9	0.0	0.0	0	0	Insufficient Freeboard
4	012108STMP	002266SMH	002267SMH	145	1.75	48.84	21.46	0.1	0.2	4.9	5.2	-	-	0.0	0.0	0	0	Surcharged
4	012313A	002771SMH	001294ND	41	1.25	13.9	11.75	0.4	0.3	2.5	2.2	-	-	0.0	0.0	0	0	Surcharged
4	012313B	001294ND	001293ND	54	1.25	17.65	14.23	0.3	0	2.2	2.3	-	-	0.0	0.0	0	0	Surcharged
4	012314A	002772SMH	001266ND	36	1	9.4	14.65	0.5	0.9	2.3	4.0	-	1.2	0.0	0.0	0	0	Surcharged
4	012314B	001266ND	002771SMH	19	1	11.79	14.7	0.9	0.4	4.0	2.8	1.2	-	0.0	0.0	0	0	Insufficient Freeboard
4	012315STMP	008777IN	002771SMH	120	0.833	2.75	5.85	0.2	0.4	1.4	3.0	-	-	0.0	0.0	0	0	Surcharged
4	012318STMP	002773SMH	002772SMH	168	1	9.38	11.6	1	0.5	Flooded	2.3	Flooded	-	0.9	0.0	5610	0	Flooded
4	012319STMP	002774SMH	002773SMH	193	1	6.86	8.44	0.7	1	Flooded	Flooded	Flooded	Flooded	0.6	0.9	1901	5610	Flooded
4	012320STMP	002775SMH	002774SMH	112	1	8.96	12.15	0.4	0.7	2.7	Flooded	-	Flooded	0.0	0.6	0	1901	Surcharged
4	012498STMP	008774IN	000464IO	47	1.25	6.58	17.47	0	0	-	-	1.3	0.0	0.0	0	0	Sufficient Capacity	
4	012499STMP	001292ND	000465IO	180	4 x 4	197.98	14.74	0	0	-	-	1.0	0.0	0.0	0	0	Sufficient Capacity	
4	012561STMP	002136SMH	001242ND	43	1	9.4	11.51	0.3	0.3	6.8	5.4	1.7	-	0.0	0.0	0	0	Insufficient Freeboard
4	012570A	002254SMH	001272ND	17	1.25	0	0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012570B	001272ND	001271ND	25	1.25	0	0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012570C	001271ND	001242ND	287	1.25	0	0	0	0.3	-	5.2	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012570D	001242ND	002138SMH	49	1.25	8.93	8.98	0.3	0.3	5.2	5.6	-	1.7	0.0	0.0	0	0	Surcharged
4	012571A	002139SMH	001244ND	185	1.25	15.09	11.83	0.5	0.8	Flooded	7.3	Flooded	0.7	0.2	0.0	325	0	Flooded
4	012571B	001244ND	001245ND	44	1.25	13.15	11.56	0.8	0.8	7.3	7.9	0.7	0.0	0.0	0	0	Insufficient Freeboard	
4	012571C	001245ND	002140SMH	23	1.25	13.81	10.85	0.8	0.8	7.9	Flooded	0.0	Flooded	0.0	0.2	0	124	Insufficient Freeboard
4	012574STMP	008382IN	001244ND	101	1.25	9.76	7.82	0.7	0.8	Flooded	7.3	Flooded	0.7	0.7	0.0	6435	0	Flooded

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
4	012660STMP	008812IN	008815IN	240	2	43.93	25.05	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012663STMP	002272SMH	001297ND	63	1	13.3	17.12	0.1	0	1.4	1.7	-	-	0.0	0.0	0	0	Surcharged
4	012689STMP	002281SMH	001324ND	94	1.5	25.08	13.86	0.3	0.3	5.8	3.1	-	-	0.0	0.0	0	0	Surcharged
4	012690STMP	002305SMH	002281SMH	178	1.25	16.73	13.96	0.2	0.3	5.6	6.1	-	-	0.0	0.0	0	0	Surcharged
4	012696STMP	002282SMH	002283SMH	77	2	43.04	15.44	0	0	-	0.0	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012698STMP	002284SMH	002283SMH	157	3	93.46	22.09	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012713STMP	008385IN	001248ND	17	1	6.41	7.86	0.8	0.8	6.1	5.5	-	-	0.0	0.0	0	0	Surcharged
4	012714STMP	008386IN	008385IN	34	0.833	6.48	11.21	0.8	0.8	8.3	6.3	1.0	-	0.0	0.0	0	0	Insufficient Freeboard
4	012715A	002141SMH	001247ND	117	1.5	21.49	17.02	0.2	0.3	1.0	4.2	-	-	0.0	0.0	0	0	Surcharged
4	012715B	001247ND	001246ND	104	1.5	22.45	16.57	0.3	0.3	4.2	7.1	-	0.5	0.0	0.0	0	0	Surcharged
4	012715C	001246ND	002143SMH	22	1.5	26.61	14.69	0.3	0.3	7.1	Flooded	0.5	Flooded	0.0	0.0	0	6	Insufficient Freeboard
4	012720STMP	002145SMH	002144SMH	39	1.5	21.68	15.89	0.3	0.3	6.0	8.2	-	-	0.0	0.0	0	0	Surcharged
4	012723STMP	008775IN	000466IO	66	1.25	4.19	3.59	55.2	0	4.4	-	-	1.0	0.0	0.0	0	0	Surcharged
4	012724STMP	008776IN	008775IN	19	0.833	4.18	11.79	0	55.2	-	4.8	0.8	-	0.0	0.0	0	0	Sufficient Capacity
4	012833STMP	007053IN	001321ND	12	1	10.93	13.6	0.4	0.4	7.2	7.4	1.4	1.4	0.0	0.0	0	0	Insufficient Freeboard
4	012834STMP	002767SMH	007053IN	48	1	10.88	13.46	0.4	0.4	Flooded	7.2	Flooded	1.4	0.4	0.0	1834	0	Flooded
4	012839A	002770SMH	001320ND	15	1.5	6.01	9.66	0	0	-	0.1	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012839B	001320ND	000391ND	32	1.5	6	9.8	0	0.1	0.1	2.2	-	-	0.0	0.0	0	0	Surcharged
4	012839C	000391ND	001321ND	171	1.5	22.11	15.24	0.1	0.4	2.2	6.9	-	1.4	0.0	0.0	0	0	Surcharged
4	012839D	001321ND	002769SMH	64	1.5	27.5	16.17	0.4	0.4	6.9	7.3	1.4	1.2	0.0	0.0	0	0	Insufficient Freeboard
4	012840STMP	007057IN	001319ND	177	1	8.37	10.79	0.6	0.5	Flooded	7.2	Flooded	1.6	0.6	0.0	4003	0	Flooded
4	012849STMP	008784IN	008783IN	168	1	6.58	8.7	0.2	0	3.3	-	2.0	-	0.0	0.0	0	0	Insufficient Freeboard
4	012850STMP	008783IN	008778IN	273	1.25	6.58	14.55	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012963STMP	008778IN	001329ND	112	1.25	15.01	17.23	0	0	-	2.2	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012982STMP	007034IN	001273ND	21	1	9.21	12.09	0.1	0	0.4	-	-	-	0.0	0.0	0	0	Surcharged
4	012983A	002255SMH	001275ND	6	1.5	16.38	9.22	0.2	0.1	0.6	0.1	-	-	0.0	0.0	0	0	Surcharged
4	012983B	001275ND	001318ND	7	1.5	16.4	9.25	0.1	0	0.1	-	-	-	0.0	0.0	0	0	Surcharged
4	012983C	001318ND	001278ND	193	1.5	16.39	11.85	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012983D	001278ND	001277ND	58	1.5	16.38	11.23	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012983E	001277ND	002256SMH	15	1.5	16.38	9.87	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012984A	002253SMH	001273ND	16	1.25	0	0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012984B	001273ND	001274ND	245	1.25	9.18	13.48	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	012984C	001274ND	002255SMH	22	1.25	9.19	9.51	0	0.2	-	0.9	-	-	0.0	0.0	0	0	Sufficient Capacity
4	013014STMP	008814IN	008813IN	27	1.25	9.51	13.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	013017STMP	002782SMH	002783SMH	104	1.5	6.63	20.34	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	013018STMP	002783SMH	002784SMH	94	1.5	6.62	15.62	0	0	-	-	-	1.5	0.0	0.0	0	0	Sufficient Capacity
4	013072STMP	002273SMH	002272SMH	67	1	13.41	16.86	0.1	0.1	Flooded	1.4	Flooded	-	0.1	0.0	47	0	Flooded
4	013074STMP	007051IN	001298ND	14	1	11.99	14.28	0.9	0.6	Flooded	8.4	Flooded	-	0.3	0.0	678	0	Flooded
4	013075STMP	008484IN	001298ND	15	1	4.46	5.4	0.7	0.6	8.2	8.4	-	-	0.0	0.0	0	0	Surcharged
4	013077STMP	002276SMH	002275SMH	151	1.75	33.98	13.93	0.6	0.6	Flooded	8.5	Flooded	0.6	0.6	0.0	7476	0	Flooded
4	013078STMP	002277SMH	002276SMH	268	1.5	21.41	11.74	0.5	0.6	Flooded	Flooded	Flooded	0.1	0.6	132	7476	Flooded	
4	013079STMP	002278SMH	002279SMH	80	1	8.44	10.46	1.3	1.3	Flooded	Flooded	Flooded	1.3	0.9	9528	10871	Flooded	
4	013080STMP	002279SMH	001303ND	91	1	11.08	13.57	1.3	0.6	Flooded	Flooded	Flooded	0.9	0.2	10871	2	Flooded	
4	01																	

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravity	Main FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
			US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
4	013088A	002769SMH	001319ND	18	1.75	33.74	13.68	0.4	0.5	7.0	6.5	1.2	1.6	0.0	0.0	0	0	0	Insufficient Freeboard
4	013088B	001319ND	002280SMH	221	1.75	36.37	16.43	0.5	0.8	6.5	Flooded	1.6	Flooded	0.0	0.5	0	2967	0	Insufficient Freeboard
4	013095STMP	008492IN	001307ND	14	1	18.1	21.82	0.7	0.5	Flooded	9.8	Flooded	0.2	0.5	0.0	5401	0	Flooded	
4	013100STMP	008815IN	001106ND	94	2	43.97	25.07	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013112A	002762SMH	001251ND	61	1.5	10.7	13.34	0	0.1	-	1.5	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013112B	001251ND	001315ND	63	1.5	18.29	15.78	0.1	0.2	1.5	3.9	-	-	0.0	0.0	0	0	0	Surcharged
4	013112C	001315ND	002145SMH	54	1.5	18.28	15.41	0.2	0.3	3.9	6.0	-	-	0.0	0.0	0	0	0	Surcharged
4	013113A	002763SMH	001316ND	36	1.5	-0.06	0.52	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013113B	001316ND	002762SMH	165	1.5	10.79	14.96	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013114A	002765SMH	001317ND	113	1.5	0	0	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013114B	001317ND	002763SMH	88	1.5	0	0	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013115STMP	008505IN	001316ND	9	1	10.83	14.08	0.4	0	2.0	-	-	-	0.0	0.0	0	0	0	Surcharged
4	013123STMP	001343ND	002284SMH	105	3	93.58	27.53	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013124STMP	008790IN	001343ND	37	0.833	10.85	18.97	0.5	0	Flooded	0.6	Flooded	-	0.2	0.0	458	0	Flooded	
4	013125STMP	002285SMH	001343ND	170	3	82.85	26.79	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013126STMP	001344ND	002285SMH	77	3	82.96	27.02	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013133STMP	008795IN	008799IN	116	1	13.43	16.99	0.2	0	3.8	-	-	-	0.0	0.0	0	0	0	Surcharged
4	013135STMP	008796IN	001328ND	69	1	11.29	15.97	0.2	0.2	5.3	6.7	0.7	-	0.0	0.0	0	0	0	Insufficient Freeboard
4	013136A	002287SMH	001328ND	29	1.25	0.73	2.62	0.1	0.2	2.8	6.4	-	-	0.0	0.0	0	0	0	Surcharged
4	013136B	001328ND	002290SMH	160	1.25	10.71	9.66	0.2	0.3	6.4	7.1	-	-	0.0	0.0	0	0	0	Surcharged
4	013140STMP	008799IN	002289SMH	133	1.25	13.43	16.13	0	0.4	-	6.2	-	1.2	0.0	0.0	0	0	0	Sufficient Capacity
4	013141STMP	002289SMH	008800IN	38	1.25	13.43	10.62	0.4	0.4	6.2	Flooded	1.2	Flooded	0.0	0.3	0	1691	0	Insufficient Freeboard
4	013142STMP	008800IN	008801IN	74	1.25	17.13	13.61	0.4	0.4	Flooded	Flooded	Flooded	Flooded	0.3	0.4	1691	1127	Flooded	
4	013143STMP	008801IN	001392ND	123	1.25	17.96	14.38	0.4	0.4	Flooded	3.4	Flooded	-	0.4	0.0	1127	0	Flooded	
4	013144A	002290SMH	001393ND	29	1.25	16.7	13.15	0.3	0.3	7.1	6.6	-	-	0.0	0.0	0	0	0	Surcharged
4	013144B	001393ND	002305SMH	30	1.25	16.65	13.14	0.3	0.2	6.6	5.6	-	-	0.0	0.0	0	0	0	Surcharged
4	013152STMP	002314SMH	002315SMH	69	2.5	42.3	17.08	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013154STMP	007379IN	001374ND	40	1.25	2.61	5.71	0	0	-	0.4	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013157STMP	002807SMH	002806SMH	198	1.5	8.36	9.18	0	0.2	-	4.2	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013159STMP	007381IN	001376ND	97	1.25	11.37	12.05	0.2	0.5	2.9	7.5	-	-	0.0	0.0	0	0	0	Surcharged
4	013161STMP	007383IN	001375ND	23	1	4.37	6.25	0.4	0.4	4.2	4.8	-	-	0.0	0.0	0	0	0	Surcharged
4	013162STMP	007401IN	001381ND	46	1	8.09	9.87	0.5	0.5	7.3	6.1	-	-	0.0	0.0	0	0	0	Surcharged
4	013164STMP	007385IN	007386IN	17	1.25	11.49	9.31	0.4	0.4	Flooded	Flooded	Flooded	Flooded	0.4	0.2	3536	609	Flooded	
4	013165STMP	007387IN	007401IN	205	1	8.07	10.95	0.2	0.5	Flooded	7.3	Flooded	-	0.2	0.0	130	0	Flooded	
4	013179STMP	007386IN	002809SMH	236	1.5	11.67	7.72	0.4	0.5	Flooded	5.4	Flooded	-	0.2	0.0	609	0	Flooded	
4	013180STMP	002814SMH	007402IN	28	4.167 x 4.5	330.19	18.03	0.1	0.1	0.7	0.4	-	-	0.0	0.0	0	0	0	Surcharged
4	013181STMP	007402IN	002811SMH	207	4.167 x 4.167	335.48	20.86	0.1	0	0.4	-	-	-	0.0	0.0	0	0	0	Surcharged
4	013184STMP	000455IO	001380ND	182	1.25	3.11	7.19	0	0	-	1.9	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013188STMP	002813SMH	002811SMH	214	2.5	47.17	9.52	0.6	0	3.3	0.6	-	-	0.0	0.0	0	0	0	Surcharged
4	013190STMP	007408IN	001378ND	9	1.25	3.4	2.73	0.9	0	3.3	3.4	-	-	0.0	0.0	0	0	0	Surcharged
4	013191STMP	007409IN	007408IN	109	1.25	3.45	7.25	0	0.9	-	3.3	-	-	0.0	0.0	0	0	0	Sufficient Capacity
4	013193A	002816SMH	001329ND	209															

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition	
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS		
4	013253STMP	002864SMH	002863SMH	227	1.25	17.51	13.8	0.5	0	Flooded	-	Flooded	-	0.1	0.0	30	0	Flooded	
4	013260STMP	002866SMH	001409ND	134	1	5.95	10.64	0.2	0.4	2.2	8.6	0.4	0.0	0.0	0.0	0	0	Insufficient Freeboard	
4	013263A	002868SMH	001410ND	54	1.25	0.63	2.45	0	0.1	-	0.9	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	013263B	001410ND	001411ND	132	1.25	-1.73	2.94	0.1	0.2	0.9	5.0	-	-	0.0	0.0	0	0	Surcharged	
4	013263C	001411ND	002871SMH	53	1.25	9.53	9.36	0.2	0.2	5.0	5.6	-	1.7	0.0	0.0	0	0	Surcharged	
4	013270STMP	008930IN	001411ND	20	1	10.08	12.47	0.2	0.2	5.6	5.2	0.0	-	0.0	0.0	0	0	Insufficient Freeboard	
4	013271STMP	002871SMH	002873SMH	245	1.25	17.97	14.42	0.2	0.1	5.6	1.1	1.7	-	0.0	0.0	0	0	Insufficient Freeboard	
4	013274STMP	008933IN	001418ND	114	1	6.74	15.19	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014062STMP	001418ND	002872SMH	64	1	10.93	16.16	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014106STMP	002872SMH	000602IO	176	1.5	10.92	16.06	0	0	-	-	-	-	1.3	0.0	0	0	Sufficient Capacity	
4	014149STMP	001387ND	002835SMH	307	3.5	73.09	19.86	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014150STMP	001388ND	001387ND	104	3.5	59.83	19.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014151STMP	002316SMH	001388ND	33	3	45	18.44	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014152STMP	002839SMH	002846SMH	28	1.5	18.39	10.4	0.6	0	0.3	-	-	-	0.0	0.0	0	0	Surcharged	
4	014153STMP	002846SMH	001367ND	163	2.5	27.25	14.54	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014154STMP	001367ND	001366ND	12	2.5	27.26	11.28	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014155STMP	001366ND	001368ND	18	2.5	27.27	12.73	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014156STMP	001368ND	002845SMH	33	2.5	27.29	13.91	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014160STMP	002815SMH	001379ND	28	4 x 4	327.23	21.86	0	0	0.2	-	-	-	0.0	0.0	0	0	Surcharged	
4	014161STMP	001379ND	001378ND	185	4.5 x 4.5	327.09	20.22	0	0	-	0.2	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014162STMP	001378ND	001377ND	31	4.5 x 4.5	330.2	18.95	0	0.1	0.2	0.4	-	-	0.0	0.0	0	0	Surcharged	
4	014163STMP	001377ND	002814SMH	23	4.5 x 4.5	330.19	18.2	0.1	0.1	0.4	0.4	-	-	0.0	0.0	0	0	Surcharged	
4	014164STMP	002811SMH	001380ND	69	6	382.28	25.69	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014165STMP	001380ND	000454IO	182	6	385.39	25.79	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014167STMP	001288ND	002269SMH	136	2	58.9	18.51	0.2	0	4.3	1.5	-	-	0.0	0.0	0	0	Surcharged	
4	014168STMP	002267SMH	001288ND	13	2	58.9	18.46	0.2	0.2	4.9	4.3	-	-	0.0	0.0	0	0	Surcharged	
4	014169STMP	002271SMH	001295ND	68	4	178.77	17.15	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014170STMP	001296ND	002271SMH	133	4	171.5	21.28	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014171STMP	001299ND	002274SMH	296	1.75	42.33	17.17	0.9	0	8.2	0.5	0.9	-	0.0	0.0	0	0	Insufficient Freeboard	
4	014172STMP	002244SMH	001299ND	8	1.75	43.01	17.33	0.9	0.9	Flooded	8.2	Flooded	0.9	0.8	0.0	7846	0	Flooded	
4	014173STMP	001298ND	002274SMH	239	2.5	111.14	22.42	0.6	0	6.9	-	-	-	0.0	0.0	0	0	Surcharged	
4	014174STMP	002274SMH	001297ND	120	4	158.13	21.48	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014175STMP	001297ND	001296ND	14	4	171.46	19.68	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014176STMP	002275SMH	001423ND	36	3	99.52	18.08	0.6	0.6	7.2	7.9	0.6	0.9	0.0	0.0	0	0	Insufficient Freeboard	
4	014177STMP	001423ND	001298ND	122	2.5	99.54	19.91	0.6	0.6	8.4	6.9	0.9	-	0.0	0.0	0	0	Insufficient Freeboard	
4	014298STMP	002286SMH	001390ND	110	3	82.73	26.92	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014299STMP	001390ND	001344ND	215	3	82.77	26.92	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014300STMP	001399ND	002338SMH	157	3	72.12	11.52	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014302STMP	001403ND	002855SMH	109	2.5	56.82	12.19	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014303STMP	002855SMH	001402ND	90	3	62.32	9.96	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014304STMP	002858SMH	001404ND	18	2.5	52.97	11.88	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014305STMP	001407ND	002864SMH	35	1	8.14	10.09	0.5	0.5	8.5	Flooded	0.6	Flooded	0.0	0.1	0	30	Insufficient Freeboard	
4	014306STMP	001304ND	002275SMH	164	2.5	84.32	17.14	0.6	0.6	8.8	7.7	0.0	0.6	0.0	0.0	0	0	Insufficient Freeboard	
4	014307STMP	002245SMH	001303ND	147															

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition	
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS		
4	014313STMP	001310ND	001313ND	22	2.5	79.08	16.99	0.3	0.3	7.6	7.4	-	-	0.0	0.0	0	0	Surcharged	
4	014314STMP	001313ND	001314ND	109	2.5	79.07	18.33	0.3	0.4	7.4	7.9	-	-	1.8	0.0	0	0	Surcharged	
4	014315STMP	001314ND	001307ND	69	2.5	79.07	17.84	0.4	0.5	7.9	8.3	1.8	0.2	0.0	0.0	0	0	Insufficient Freeboard	
4	014316STMP	001250ND	002144SMH	52	1.75	34.72	13.99	0.4	0.3	9.2	7.9	1.4	-	0.0	0.0	0	0	Insufficient Freeboard	
4	014317STMP	001249ND	002144SMH	78	1.5	30.43	16.91	0.3	0.3	7.5	8.2	1.0	-	0.0	0.0	0	0	Insufficient Freeboard	
4	014318STMP	002146SMH	001250ND	65	1.75	34.68	15.08	0.3	0.4	Flooded	9.2	Flooded	1.4	0.1	0.0	0	321	0	Flooded
4	014319STMP	002143SMH	001249ND	22	1.5	30.15	16.67	0.3	0.3	Flooded	7.5	Flooded	1.0	0.0	0.0	6	0	Flooded	
4	014320STMP	001413ND	002146SMH	205	1.75	26.39	15.39	0.1	0.3	2.2	Flooded	-	Flooded	0.0	0.1	0	321	Surcharged	
4	014321STMP	002873SMH	001413ND	70	1.75	26.43	15.75	0.1	0.1	0.6	2.2	-	-	0.0	0.0	0	0	Surcharged	
4	014322STMP	001404ND	001403ND	177	2.5	52.77	12.55	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014323STMP	001402ND	001399ND	154	3	62.39	9.88	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014324A	002338SMH	001398ND	10	3	72.16	17.15	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014324B	001398ND	001116ND	194	3	72.17	23.28	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014324C	001116ND	002286SMH	94	3	72.25	23.25	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014326STMP	002867SMH	001409ND	42	1	4.65	5.65	0.4	0.4	Flooded	8.6	Flooded	0.0	0.3	0.0	808	0	Flooded	
4	014327STMP	001409ND	001408ND	72	1	7.98	9.68	0.4	0.5	8.6	8.6	0.0	0.7	0.0	0.0	0	0	Insufficient Freeboard	
4	014328STMP	001408ND	001407ND	101	1	8.04	9.85	0.5	0.5	8.6	8.5	0.7	0.6	0.0	0.0	0	0	Insufficient Freeboard	
4	014329STMP	002806SMH	001373ND	69	2	8.43	7.28	0.2	0.3	3.7	5.0	-	-	0.0	0.0	0	0	Surcharged	
4	014330STMP	001373ND	002805SMH	196	2	8.61	4.32	0.3	0.5	5.0	7.2	-	-	0.0	0.0	0	0	Surcharged	
4	014331STMP	002805SMH	001376ND	80	2	19.77	6.15	0.5	0.5	7.2	6.7	-	-	0.0	0.0	0	0	Surcharged	
4	014332STMP	001376ND	001375ND	174	2	30.99	9.67	0.5	0.4	6.7	3.8	-	-	0.0	0.0	0	0	Surcharged	
4	014333STMP	001375ND	002809SMH	58	2	35.3	13.27	0.4	0.5	3.8	4.9	-	-	0.0	0.0	0	0	Surcharged	
4	014334STMP	002809SMH	001381ND	33	2	31.49	10.63	0.5	0.5	4.9	5.1	-	-	0.0	0.0	0	0	Surcharged	
4	014335STMP	001381ND	002813SMH	254	2	38.98	12.23	0.5	0.6	5.1	3.8	-	-	0.0	0.0	0	0	Surcharged	
4	014336STMP	002776SMH	001293ND	17	4.5	174.43	12.85	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014337STMP	001293ND	008772IN	12	4.5	192.04	14.38	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014338STMP	001394ND	002227SMH	52	4	162.59	16.52	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014339STMP	001265ND	001394ND	135	4	156.39	18.33	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014340STMP	002063SMH	001333ND	31	3.5	144.41	22.83	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014341STMP	001333ND	001264ND	27	3.5	150.87	22.93	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014342STMP	001325ND	002282SMH	29	1.75	40.48	16.78	0.4	0	1.2	-	-	-	0.0	0.0	0	0	Surcharged	
4	014343STMP	001392ND	001325ND	43	1.75	40.45	16.66	0.4	0.4	2.9	1.2	-	-	0.0	0.0	0	0	Surcharged	
4	014344STMP	001324ND	001392ND	92	1.75	25.08	10.32	0.3	0.4	2.8	2.9	-	-	0.0	0.0	0	0	Surcharged	
4	014347STMP	002315SMH	001374ND	16	2.5	42.36	11.56	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014348STMP	001374ND	002316SMH	20	2.5	44.97	13.29	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014407A	001295ND	001291ND	110	4	178.86	17	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014407B	001291ND	001290ND	60	4	179.02	16.59	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014407C	001290ND	001289ND	24	4	186.01	16.28	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
4	014410STMP	001303ND	001304ND	100	2.5	82.73	17.01	0.6	0.6	Flooded	8.8	Flooded	0.0	0.2	0.0	2	0	Flooded	
4	014419STMP	001400ND	002770SMH	259	1.5	0	0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	009644STMP	008872IN	008873IN	33	1.5	22.88	17.51	0.5	0.5	Flooded	Flooded	Flooded	0.4	0.4	2086	1795	Flooded		
5	009645STMP	002781SMH	002321SMH	87	1.75	23.24	16.55	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	009990STMP	008871IN	002842SMH	24	1.25	9.02	8.03	0.6	0.6	Flooded	5.7	Flooded	0.4	0.4	0.0	1095	0	Flooded	
5	009991STMP	008873IN	0028																

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition	
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS		
5	010939STMP	008836IN	008837IN	30	1.25	9.88	15.06	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	011121STMP	008875IN	008881IN	25	1.25	19.87	15.99	0.3	0.3	2.5	1.4	0.3	-	0.0	0.0	0	0	Insufficient Freeboard	
5	011122STMP	008877IN	008875IN	46	1.25	12.67	10.2	0.3	0.3	Flooded	2.5	Flooded	0.3	0.3	0.0	0.0	1322	0	Flooded
5	011188STMP	002848SMH	008872IN	129	1.5	19.83	13.13	0.3	0.5	1.1	Flooded	-	Flooded	0.0	0.4	0	2086	Surcharged	
5	011189STMP	008837IN	008832IN	237	1.25	9.83	11.58	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	011190STMP	002842SMH	002838SMH	188	2	64.07	21.83	0.6	0	4.9	-	0.4	-	0.0	0.0	0	0	Insufficient Freeboard	
5	011191STMP	008888IN	008887IN	45	1.25	10.52	12.06	0.1	0.1	1.4	2.9	-	-	0.0	0.0	0	0	Surcharged	
5	011192STMP	008889IN	008888IN	31	1.25	6.03	10.82	0	0.1	-	1.4	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	011194STMP	008890IN	008889IN	51	1.25	6.09	11.82	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	011278STMP	002320SMH	002319SMH	288	1.75	23.19	15.93	0	0	-	0.2	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	011279STMP	002321SMH	002320SMH	37	1.75	23.26	17.41	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	011413STMP	008881IN	002848SMH	45	1.25	19.84	17.68	0.3	0.3	1.4	1.4	-	-	0.0	0.0	0	0	Surcharged	
5	011417STMP	002318SMH	002317SMH	181	2	48.65	17.71	0.1	0.2	2.2	Flooded	1.8	Flooded	0.0	0.1	0	253	Insufficient Freeboard	
5	011418STMP	002319SMH	002318SMH	204	1.75	38.4	18.43	0	0.1	0.2	2.4	-	1.8	0.0	0.0	0	0	Surcharged	
5	011419STMP	008887IN	002318SMH	13	1.25	10.49	8.43	0.1	0.1	2.9	2.9	-	1.8	0.0	0.0	0	0	Surcharged	
5	011486STMP	002834SMH	002823SMH	63	2.5	49.26	12.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	011502STMP	007457IN	002834SMH	15	2.5	49.22	13.51	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	011505STMP	002821SMH	007421IN	308	4	145.59	14.65	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	011516STMP	002838SMH	002833SMH	305	3	64.07	17.84	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	011576STMP	007417IN	001383ND	87	1.25	10.18	8.15	0.5	1	3.3	5.9	0.2	0.2	0.0	0.0	0	0	Insufficient Freeboard	
5	011578STMP	002819SMH	002820SMH	101	2	22.7	7.13	6.2	0.2	5.0	2.2	-	-	0.0	0.0	0	0	Surcharged	
5	011579STMP	002820SMH	000456IO	32	4	183.56	14.29	0.2	0	0.2	-	-	-	0.0	0.0	0	0	Surcharged	
5	011580STMP	007421IN	002820SMH	112	4	161.11	14.66	0	0.2	-	0.2	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	011581STMP	002822SMH	002821SMH	178	3	132.37	20.97	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	011586STMP	007427IN	001384ND	13	1.25	20.18	16.05	0.7	0.1	5.1	1.8	-	-	0.0	0.0	0	0	Surcharged	
5	011589STMP	007429IN	002825SMH	53	1.25	8.85	11.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	013011STMP	006983IN	002781SMH	11	1.25	23.21	18.93	0.5	0	2.9	-	1.2	-	0.0	0.0	0	0	Insufficient Freeboard	
5	013199STMP	002825SMH	002826SMH	193	1.5	8.83	10.11	0	0.3	-	2.0	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	013201A	002826SMH	001382ND	83	1.5	16.02	11.86	0.3	0.4	2.0	5.2	-	0.3	0.0	0.0	0	0	Surcharged	
5	013201B	001382ND	007433IN	20	1.5	16.4	9.27	0.4	0.4	5.2	5.3	0.3	0.2	0.0	0.0	0	0	Insufficient Freeboard	
5	013202STMP	007431IN	001382ND	49	1.25	9.5	7.59	0.4	0.4	Flooded	5.4	Flooded	0.3	0.1	0.0	217	0	Flooded	
5	013203STMP	007432IN	007431IN	13	1.25	9.47	7.55	0.4	0.4	Flooded	Flooded	Flooded	Flooded	0.4	0.1	2281	217	Flooded	
5	013204STMP	007433IN	002827SMH	66	1.5	19.62	10.88	0.4	0.5	5.3	5.5	0.2	0.5	0.0	0.0	0	0	Insufficient Freeboard	
5	013206STMP	002827SMH	002819SMH	140	1.5	19.49	10.79	0.5	6.2	5.5	5.5	0.5	-	0.0	0.0	0	0	Insufficient Freeboard	
5	013207STMP	007435IN	002819SMH	73	0.667	4.09	11.15	0.9	6.2	Flooded	6.3	Flooded	-	0.9	0.0	3927	0	Flooded	
5	013208STMP	002823SMH	002822SMH	283	3	132.52	26.47	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	013210A	007418IN	001383ND	146	1.5	12.91	7.2	0.7	1	Flooded	5.6	Flooded	0.2	0.6	0.0	3661	0	Flooded	
5	013210B	001383ND	007421IN	168	1.5	16.39	9.08	1	0	5.6	2.0	0.2	-	0.0	0.0	0	0	Insufficient Freeboard	
5	013211STMP	007437IN	007438IN	84	1	5.46	6.91	0.8	55.3	Flooded	Flooded	Flooded	Flooded	0.7	55.3	3169	30117	Flooded	
5	013214STMP	007442IN	000457IO	54	1.5	0.73	7.82	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	013215STMP	007443IN	000458IO	25	1.25	3.19	4.72	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
5	014068STMP	002843SMH	008870IN	55	2	59.83	19.94	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.5	0.5	11005	2131	Flooded	
5	014125STMP	002310SMH	004034SMH	76	2.5	40.39	1												

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravity	Main FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
			US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
5	014365B	001384ND	001385ND	128	3	83.48	12.63	0.1	0	0.1	-	-	-	0.0	0.0	0	0	0	Surcharged
5	014365C	001385ND	002823SMH	22	3	83.55	14.57	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	009637A	002238SMH	001238ND	43	1.75	31.68	15.98	0.5	0.6	2.3	2.9	1.5	1.0	0.0	0.0	0	0	0	Insufficient Freeboard
6	009637B	001238ND	001237ND	154	1.75	31.67	15	0.6	1.2	2.9	Flooded	1.0	Flooded	0.0	1.0	0	28	15	Insufficient Freeboard
6	009637C	001237ND	001220ND	18	1.75	27.83	11.36	1.2	1.2	Flooded	Flooded	Flooded	Flooded	1.0	0.8	28	15	Flooded	
6	009638STMP	006950IN	000199CB	4	1.25	12.1	9.76	1.4	0.8	3.1	2.7	1.2	1.4	0.0	0.0	0	0	0	Insufficient Freeboard
6	009639STMP	006948IN	006949IN	6	1	11.7	14.37	1.4	1.4	Flooded	4.5	Flooded	0.3	1.3	0.0	16795	0	0	Flooded
6	009640STMP	006949IN	006950IN	16	1	11.7	14.61	1.4	1.4	4.5	3.4	0.3	1.2	0.0	0.0	0	0	0	Insufficient Freeboard
6	010522STMP	000307CB	008479IN	59	1	8.56	10.96	1	0	Flooded	-	Flooded	1.9	0.8	0.0	5632	0	0	Flooded
6	010523STMP	008479IN	000414IO	16	1.25	8.56	11.64	0	0	-	-	1.9	1.2	0.0	0.0	0	0	0	Sufficient Capacity
6	010524STMP	008480IN	008481IN	29	1	5.33	12.94	0	0	-	-	1.0	1.4	0.0	0.0	0	0	0	Sufficient Capacity
6	010525STMP	008481IN	002083SMH	118	1.5	5.31	7.99	0	0	-	0.4	1.4	-	0.0	0.0	0	0	0	Sufficient Capacity
6	010526STMP	002083SMH	002084SMH	82	3	18.42	3.95	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	010813STMP	002085SMH	000415IO	230	3	26.49	5.43	0	0	-	-	-	-	1.6	0.0	0.0	0	0	Sufficient Capacity
6	010819STMP	002086SMH	002083SMH	143	3	13.28	5.12	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	010820STMP	002084SMH	002085SMH	142	3	18.4	4.44	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	010851STMP	008418IN	008419IN	143	3.5	49.21	6.22	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	010852STMP	008417IN	008418IN	121	3.5833 x 5.6667	45.22	-2.69	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	010853STMP	002860ND	008417IN	63	3.5833 x 5.6667	45.2	7.17	0.1	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	010854STMP	002098SMH	002100SMH	34	2.5	3.48	4.51	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	010856STMP	002100SMH	002097SMH	68	3	10.48	7.02	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	010858STMP	008445IN	002100SMH	44	1.75	7.01	11.7	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	010859STMP	008427IN	002101SMH	76	1	3.95	4.98	0.6	0	1.6	1.8	-	-	0.0	0.0	0	0	0	Surcharged
6	010860STMP	002101SMH	002095SMH	195	6	309.9	25.04	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	010861A	002094SMH	001261ND	152	4.5 x 6	372.29	13.8	0.1	0	0.9	0.0	-	-	0.0	0.0	0	0	0	Surcharged
6	010861B	001261ND	001262ND	38	4.5 x 6	374.61	14.78	0	0	0.0	-	-	-	0.0	0.0	0	0	0	Surcharged
6	010861C	001262ND	002096SMH	214	4.5 x 6	374.07	15.97	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	010862STMP	000309CB	001261ND	30	1.25	3.49	4.62	0.2	0	0.9	3.3	-	-	0.0	0.0	0	0	0	Surcharged
6	011035STMP	008428IN	002071SMH	123	1.75	13.05	6.34	0.1	0.1	1.1	1.4	-	-	0.0	0.0	0	0	0	Surcharged
6	011037STMP	002071SMH	002073SMH	151	1.75	19.82	8.57	0.1	0.1	1.4	3.7	-	-	0.0	0.0	0	0	0	Surcharged
6	011040STMP	002070SMH	008428IN	120	1.5	12.97	9.21	0.1	0.1	0.5	1.4	-	-	0.0	0.0	0	0	0	Surcharged
6	011041STMP	000297CB	002074SMH	127	2	15.28	5.77	0.7	0.7	1.4	2.1	1.1	1.0	0.0	0.0	0	0	0	Insufficient Freeboard
6	011042STMP	002074SMH	002075SMH	168	2	16.84	5.85	0.7	0.7	2.1	2.1	1.0	0.7	0.0	0.0	0	0	0	Insufficient Freeboard
6	011045STMP	002075SMH	002082SMH	251	2	16.81	7.31	0.7	1.8	2.1	4.9	0.7	0.9	0.0	0.0	0	0	0	Insufficient Freeboard
6	011050STMP	000298CB	008462IN	92	1.25	6.28	5.01	0.9	1.8	4.4	5.3	0.7	1.2	0.0	0.0	0	0	0	Insufficient Freeboard
6	011052STMP	008439IN	000298CB	42	1	6.49	8.02	0.9	0.9	Flooded	4.6	Flooded	0.7	0.6	0.0	2795	0	0	Flooded
6	011054STMP	008442IN	000300CB	8	1	3.47	4.51	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	011055STMP	002097SMH	002077SMH	50	2.5	10.49	8.1	0	0	-	-	-	-	0.0	0.0	0	0	0	Sufficient Capacity
6	011063STMP	008451IN	000301CB	20	1	14.79	18.32	1.6	0.6	Flooded	1.2	Flooded	-	1.2	0.0	18945	0	0	Flooded
6	011064A	000301CB	001255ND	60	1.5	14.81	9.32	0.6	0.6	0.7	1.0	-	-	0.0	0.0	0	0	0	Surcharged
6	011064B	001255ND	001256ND	46	1.5	14.87	9.23	0.6	0.6	1.0	1.2	-	-	0.0	0.0	0	0	0	Surcharged
6	011064C	001256ND	008457IN	2															

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
6	011547STMP	002077SMH	008405IN	101	2.5	10.51	6.82	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	011548STMP	008406IN	002070SMH	16	1.25	8	7.87	0	0.1	0.5	0.8	-	-	0.0	0.0	0	0	Surcharged
6	011549STMP	008440IN	002070SMH	92	1.25	5.32	4.46	0.1	0.1	0.9	0.8	-	-	0.0	0.0	0	0	Surcharged
6	011552STMP	008455IN	008457IN	9	1	4.15	5.22	1.1	0.6	1.8	1.7	-	-	0.0	0.0	0	0	Surcharged
6	011556STMP	008459IN	008418IN	8	1	3.87	4.87	24.3	0	2.0	1.6	-	-	0.0	0.0	0	0	Surcharged
6	011558STMP	008461IN	002080SMH	13	1.5	11.59	6.67	0	0	-	0.2	-	-	0.0	0.0	0	0	Sufficient Capacity
6	011559STMP	002079SMH	002080SMH	7	2	28.29	8.76	0.3	0	0.4	-	-	-	0.0	0.0	0	0	Surcharged
6	011954STMP	008808IN	002844SMH	58	2	9.09	2.78	0.2	0	0.2	0.7	-	-	0.0	0.0	0	0	Surcharged
6	011955STMP	008810IN	008808IN	153	1.75	9.09	3.77	0.4	0.2	0.9	0.5	0.8	-	0.0	0.0	0	0	Insufficient Freeboard
6	011958STMP	002844SMH	002325SMH	114	6	289.65	22.72	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	012089STMP	002230SMH	001371ND	344	5	245.73	20.04	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	012113STMP	002235SMH	002234SMH	73	2	59.47	18.82	1.2	0	Flooded	0.3	Flooded	-	0.9	0.0	6019	0	Flooded
6	012438STMP	008389IN	008390IN	6	1	3.41	4.3	0.3	0.3	1.5	1.3	1.6	1.8	0.0	0.0	0	0	Insufficient Freeboard
6	012439STMP	008390IN	008391IN	6	1	3.38	4.28	0.3	0.2	1.3	1.0	1.8	-	0.0	0.0	0	0	Insufficient Freeboard
6	012440STMP	008391IN	008392IN	5	1	3.37	4.27	0.2	0.2	1.0	0.8	-	-	0.0	0.0	0	0	Surcharged
6	012441STMP	008392IN	000309CB	6	1	3.42	5.6	0.2	0.2	0.8	1.1	-	-	0.0	0.0	0	0	Surcharged
6	012445STMP	002065SMH	000297CB	58	2	15.33	5.28	0.7	0.7	1.3	1.4	1.2	1.1	0.0	0.0	0	0	Insufficient Freeboard
6	012446STMP	002066SMH	002065SMH	64	2	15.4	4.85	0.7	0.7	1.2	1.3	0.6	1.2	0.0	0.0	0	0	Insufficient Freeboard
6	012447STMP	002067SMH	002066SMH	125	1.5	12.77	7.18	1.4	0.7	Flooded	1.7	Flooded	0.6	0.7	0.0	2677	0	Flooded
6	012455STMP	008464IN	006864IN	39	1.25	8.65	7.48	1.8	2	Flooded	Flooded	Flooded	Flooded	1.4	1.7	6155	3697	Flooded
6	012456STMP	006864IN	000304CB	35	1.5	13.1	7.51	2	2.2	Flooded	Flooded	Flooded	Flooded	1.7	1.6	3697	2620	Flooded
6	012458STMP	000304CB	000305CB	155	1.25	10.7	8.49	2.2	1.7	Flooded	0.2	Flooded	1.8	1.6	0.0	2620	0	Flooded
6	012461STMP	008469IN	008473IN	30	1.5	4.66	11.39	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	012465STMP	008473IN	002086SMH	16	2	4.64	5.58	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	012472STMP	008409IN	006864IN	83	1	6.48	8.09	1.7	2	Flooded	Flooded	Flooded	Flooded	1.7	1.7	14380	3697	Flooded
6	012478STMP	008415IN	000418IO	34	1.5	10.58	25.1	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	012479STMP	008416IN	000419IO	17	1.25	4.93	11.12	0	0	-	-	-	-	0.9	0.0	0	0	Sufficient Capacity
6	012480STMP	000421IO	000420IO	180	1.75	9.04	7.53	0	0	-	-	1.7	-	0.0	0.0	0	0	Sufficient Capacity
6	012481STMP	002092SMH	008461IN	99	1.5	11.61	6.79	0	0	0.0	-	-	-	0.0	0.0	0	0	Surcharged
6	012483A	008423IN	001259ND	183	1.25	8.82	7.1	3.1	2.9	Flooded	Flooded	Flooded	Flooded	2.8	0.4	11602	3	Flooded
6	012483B	001259ND	002067SMH	65	1.25	10.14	8.2	2.9	1.4	Flooded	Flooded	Flooded	Flooded	0.4	0.7	3	2677	Flooded
6	012484A	002095SMH	001258ND	202	4 x 6	326.82	25.53	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	012484B	001258ND	002068SMH	56	4 x 6	326.89	26.28	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	012485STMP	002072SMH	002073SMH	52	4 x 6	344.4	14.41	0.1	0.1	1.2	1.4	-	-	0.0	0.0	0	0	Surcharged
6	012486STMP	002068SMH	002072SMH	296	4 x 6	334.19	22.11	0	0.1	-	1.2	-	-	0.0	0.0	0	0	Sufficient Capacity
6	012487STMP	002073SMH	002094SMH	103	4.5 x 6	363.97	13.54	0.1	0.1	0.9	0.9	-	-	0.0	0.0	0	0	Surcharged
6	012488STMP	000300CB	002098SMH	13	1	3.47	5.28	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	012489STMP	008457IN	002860ND	63	1.5	16.77	9.78	0.6	0.1	1.2	0.9	-	-	0.0	0.0	0	0	Surcharged
6	012491STMP	002080SMH	008419IN	57	2.25 x 3.75	39.87	6.21	0	0	-	1.2	-	-	0.0	0.0	0	0	Sufficient Capacity
6	012493STMP	002096SMH	000417IO	243	6	384.08	36.68	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	012495STMP	008424IN	008423IN	28	1.25	8.61	6.91	3.1	3.1	Flooded	Flooded	Flooded	Flooded	2.7	2.8	11480	11602	Flooded
6	012584STMP	002069SMH	002095SMH	37	2.5	17.24	6.94	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	012585STMP	002081SMH	002079SMH	65	1.5	21.17	11.87	1.6	0.3	2.7	0.9	-	-	0.0	0.0	0	0	Surcharged
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TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravity	Main FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
			US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
6	012670STMP	002231SMH	002230SMH	304	4.5	233.75	23.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	012676STMP	000200CB	000220CB	34	1.25	22.73	18.3	0.6	0.4	Flooded	0.7	Flooded	1.9	0.5	0.0	3930	0	Flooded	
6	012680STMP	000205CB	002239SMH	10	1.25	7.91	9.43	1	1	Flooded	Flooded	Flooded	Flooded	1.0	1.0	4189	2998	Flooded	
6	012681STMP	000206CB	002239SMH	26	1.25	8.03	12.3	1	1	1.7	Flooded	0.4	Flooded	0.0	1.0	0	2998	Insufficient Freeboard	
6	012682STMP	002239SMH	002240SMH	40	1.25	12.97	13.11	1	1.1	Flooded	Flooded	Flooded	Flooded	1.0	0.6	2998	1022	Flooded	
6	012684STMP	006961IN	006962IN	8	1	6.52	8.21	1.2	1.2	Flooded	Flooded	Flooded	Flooded	1.1	0.8	4360	1001	Flooded	
6	012685STMP	006962IN	006963IN	7	1	7.37	9.3	1.2	1	Flooded	1.4	Flooded	0.1	0.8	0.0	1001	0	Flooded	
6	012686STMP	006963IN	000206CB	10	1	7.39	9.6	1	1	1.4	1.9	0.1	0.4	0.0	0.0	0	0	Insufficient Freeboard	
6	012971STMP	000187CB	001216ND	80	1	9.12	11.35	1.1	0	Flooded	1.4	Flooded	-	1.0	0.0	9525	0	Flooded	
6	012976STMP	000189CB	001218ND	19	1	10.64	13.25	0.9	0	3.8	1.3	-	-	0.0	0.0	0	0	Surcharged	
6	012977STMP	007031IN	007032IN	8	1	8.26	10.42	0.4	0.4	Flooded	0.7	Flooded	1.2	0.4	0.0	812	0	Flooded	
6	012978STMP	000316CB	001276ND	32	1	4.08	10.02	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	012990STMP	006908IN	001371ND	23	1.25	23.12	18.27	1.9	0	Flooded	2.6	Flooded	-	0.2	0.0	614	0	Flooded	
6	012991STMP	002785SMH	001239ND	77	1.5	23.24	13.06	0.3	0	Flooded	1.1	Flooded	-	0.0	0.0	5	0	Flooded	
6	012994STMP	001220ND	002237SMH	13	1.5	31.88	17.63	1.2	1.1	Flooded	Flooded	Flooded	Flooded	0.8	0.6	15	1530	Flooded	
6	012996STMP	000195CB	001220ND	12	1.25	13.1	10.4	1.2	1.2	Flooded	Flooded	Flooded	Flooded	1.1	0.8	10395	15	Flooded	
6	013003STMP	002777SMH	000215CB	106	1.25	9.98	16.24	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	013004STMP	000215CB	006980IN	96	1.25	9.97	14.54	0	0.1	-	1.7	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	013005STMP	006980IN	006981IN	87	1.25	18.3	14.77	0.1	1.1	1.7	Flooded	-	Flooded	0.0	1.1	0	11682	Surcharged	
6	013006STMP	006981IN	001253ND	185	1	11.08	15.22	1.1	0	Flooded	-	Flooded	-	1.1	0.0	11682	0	Flooded	
6	013019STMP	002232SMH	002785SMH	69	1.5	19.41	15.42	0	0.3	-	Flooded	-	Flooded	0.0	0.0	0	5	Sufficient Capacity	
6	013020STMP	002234SMH	001219ND	36	4.5	150.36	18.67	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	013021STMP	002236SMH	002234SMH	73	4	94.43	17.78	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	013022STMP	002790SMH	002236SMH	211	4	81.98	19.17	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	013023STMP	000220CB	002238SMH	40	1.5	22.7	17.59	0.4	0.5	0.4	2.6	1.9	1.5	0.0	0.0	0	0	Insufficient Freeboard	
6	013024A	002778SMH	001253ND	391	1.5	8.53	9.99	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	013024B	001253ND	002232SMH	122	1.5	19.41	16.25	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	013025STMP	006989IN	002786SMH	27	1	8.92	11.22	0.2	0.1	1.7	0.9	0.2	0.7	0.0	0.0	0	0	Insufficient Freeboard	
6	013027STMP	002786SMH	006969IN	233	1	8.52	11.64	0.1	1.1	0.9	5.9	0.7	0.6	0.0	0.0	0	0	Insufficient Freeboard	
6	013030STMP	000224CB	002787SMH	14	1.25	23.76	19.27	0.5	0	Flooded	-	Flooded	-	0.1	0.0	117	0	Flooded	
6	013031STMP	002787SMH	002788SMH	43	1.75	23.77	15.18	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	013033STMP	002788SMH	002789SMH	86	3	59.44	21.38	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	013054STMP	002804SMH	007026IN	74	1.25	12.73	12.72	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	013056STMP	007026IN	001269ND	209	1.25	12.73	22.08	0	0	-	1.4	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	013061STMP	002135SMH	002252SMH	257	2	15.99	13.75	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	013063STMP	000317CB	002252SMH	35	1.25	8.26	13.37	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	013064STMP	007032IN	000317CB	11	1	8.26	10.9	0.4	0	0.7	-	1.2	-	0.0	0.0	0	0	Insufficient Freeboard	
6	013148STMP	007375IN	001372ND	27	1.25	5.23	4.49	0	0	0.1	1.1	-	-	0.0	0.0	0	0	Surcharged	
6	013167STMP	000366CB	002101SMH	30	1	11.02	13.8	0.3	0	2.7	1.8	-	-	0.0	0.0	0	0	Surcharged	
6	013170STMP	002828SMH	007459IN	91	1.25	16.49	13.09	1.7	3	Flooded	Flooded	Flooded	Flooded	0.9	2.7	11373	18629	Flooded	
6	013178STMP	007394IN	000366CB	125	1.25	11.04	8.85	0.2	0.3	3.4	2.4	0.3	-	0.0	0	0	0	Insufficient Freeboard	
6	014116STMP	001219ND	002233SMH	38	4.5	150.43	21.08	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
6	014179STMP	002237SMH	002235SMH	357	2	49.62	16.77	1.1	1.										

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
6	014186STMP	001276ND	002788SMH	304	2	28.19	18.05	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014187STMP	002252SMH	001276ND	9	2	24.17	13.18	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014196STMP	008419IN	001260ND	150	6.333 x 4	93.8	4.97	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014197STMP	001260ND	000422IO	47	6.33 x 3.5	93.86	-6.13	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014291STMP	002078SMH	001257ND	117	2	28.49	10.61	0	0	-	0.1	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014292STMP	001257ND	002860ND	66	2	28.53	9.12	0	0.1	0.1	0.4	-	-	0.0	0.0	0	0	Surcharged
6	014293STMP	001214ND	002231SMH	192	4.5	214.72	22.03	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014294STMP	000348CB	001369ND	84	2	12.23	12.07	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014295STMP	001369ND	002844SMH	84	2	12.23	9.68	0	0	-	0.7	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014296STMP	001371ND	002844SMH	219	5	268.72	17.11	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014345STMP	002325SMH	001372ND	77	6	289.92	17.33	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014346STMP	001372ND	002101SMH	129	6	295.09	28.24	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014370STMP	000305CB	002861ND	94	1.25	10.7	9.11	1.7	0	0.2	-	1.8	-	0.0	0.0	0	0	Insufficient Freeboard
6	014371STMP	002861ND	002078SMH	110	2	10.7	7.57	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014408A	001218ND	001216ND	343	4.5	170.42	20.62	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014408B	001216ND	001239ND	49	4.5	178.68	20.22	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014408C	001239ND	001215ND	50	4.5	201.98	21.51	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014408D	001215ND	001269ND	31	4.5	202.1	21.19	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014408E	001269ND	001214ND	43	4.5	214.68	22	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014408STMP	000002PD	009060IN	26	1.5	16.42	8.59	23	55.4	19.6	16.4	-	-	0.0	0.0	0	0	Surcharged
7	009661STMP	008333IN	002055SMH	14	1.25	5.06	9.14	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	009662STMP	002055SMH	008334IN	110	1.25	10.74	12.07	0	0.1	-	1.5	-	-	0.0	0.0	0	0	Sufficient Capacity
7	009663STMP	008334IN	008335IN	39	1.25	10.54	9.24	0.1	0.1	1.5	1.5	-	-	0.0	0.0	0	0	Surcharged
7	009664STMP	008335IN	002056SMH	19	1.25	10.36	9.74	0.1	0.1	1.5	1.5	-	-	0.0	0.0	0	0	Surcharged
7	009665STMP	002056SMH	002057SMH	31	1.5	10.34	10.81	0.1	0.2	1.2	2.2	-	-	0.0	0.0	0	0	Surcharged
7	009669STMP	002057SMH	002058SMH	280	1.5	10.83	7.78	0.2	0.2	2.2	Flooded	-	Flooded	0.0	0.1	0	304	Surcharged
7	009670STMP	002058SMH	002059SMH	179	1.5	25.66	15	0.2	2.1	Flooded	8.8	Flooded	-	0.1	0.0	304	0	Flooded
7	009822STMP	000245CB	002680SMH	11	0.833	8.04	14.36	0.6	0.4	Flooded	Flooded	Flooded	0.5	0.3	3403	1637	Flooded	
7	009823STMP	001115ND	000245CB	51	0.5	6.76	23.49	0.7	0.6	Flooded	Flooded	Flooded	0.7	0.5	527	3403	Flooded	
7	009824STMP	002680SMH	002681SMH	49	1.75	40.53	17.6	0.4	0.5	Flooded	Flooded	Flooded	0.3	0.3	1637	911	Flooded	
7	009825STMP	001916SMH	002680SMH	262	1.75	30.05	14.71	0.1	0.4	0.7	Flooded	-	Flooded	0.0	0.3	0	1637	Surcharged
7	009827STMP	002681SMH	002683SMH	239	2	45.34	14.28	0.5	1.4	Flooded	Flooded	Flooded	0.3	1.2	911	25157	Flooded	
7	009830STMP	002682SMH	001117ND	180	1	9.42	14.5	0.7	0.8	Flooded	9.0	Flooded	1.2	0.3	0.0	798	0	Flooded
7	009831STMP	006686IN	002682SMH	20	0.667	4.43	12.46	0.7	0.7	Flooded	Flooded	Flooded	0.7	0.3	2739	798	Flooded	
7	009833STMP	006688IN	001117ND	9	0.833	5.29	9.04	0.8	0.8	Flooded	9.2	Flooded	1.2	0.0	0.0	4	0	Flooded
7	009834STMP	001117ND	001166ND	196	1	12.63	15.24	0.8	1.4	9.0	Flooded	1.2	Flooded	0.0	1.2	0	35	Insufficient Freeboard
7	009835STMP	000248CB	002683SMH	12	0.833	9.97	17.51	1.7	1.4	Flooded	Flooded	Flooded	1.6	1.2	11852	25157	Flooded	
7	009838STMP	002037SMH	002041SMH	49	2	37.68	23.57	0	0	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	009844STMP	006756IN	002041SMH	49	1.25	19.61	15.84	0.3	0	1.9	0.6	-	0.0	0.0	0	0	Surcharged	
7	009845STMP	002038SMH	006756IN	49	1.25	19.53	15.58	0.3	0.3	4.8	1.9	0.4	-	0.0	0.0	0	0	Insufficient Freeboard
7	009880STMP	002040SMH	002038SMH	134	1.25	19.61	16	0.2	0.3	Flooded	4.8	Flooded	0.4	0.2	0.0	713	0	Flooded
7	009881STMP	002126SMH	002127SMH	83	1.75	35.21	17.96	0.5	0.6	2.4	Flooded	1.1	Flooded	0.0	0.5	0	4275	Insufficient Freeboard
7	009882STMP	002127SMH	002128SMH	198	1.5	30.39	17.15	0.6	0	Flooded	-	Flooded	-	0.5	0.0	4275	0	Flooded
7	009891STMP	002129SMH	0															

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
7	009899STMP	008746IN	007171IN	83	1.5	12.28	9.91	0.5	0.5	3.5	4.8	1.6	0.6	0.0	0.0	0	0	Insufficient Freeboard
7	009969STMP	002089SMH	002087SMH	207	1.25	5.92	4.74	53.6	54.9	Flooded	Flooded	Flooded	Flooded	2.7	46.0	3972	19796	Flooded
7	009970STMP	006874IN	002089SMH	9	1.25	8.2	6.59	45.2	53.6	Flooded	Flooded	Flooded	Flooded	2.8	2.7	7004	3972	Flooded
7	009971STMP	002090SMH	002091SMH	40	1.25	5.91	5.06	0	0.1	-	0.2	2.0	-	0.0	0.0	0	0	Sufficient Capacity
7	009972STMP	002717SMH	008611IN	64	1.25	11.38	10.33	0.1	0.2	3.8	4.4	0.3	1.5	0.0	0.0	0	0	Insufficient Freeboard
7	009974STMP	008614IN	002717SMH	28	1.5	11.37	14.06	0.1	0.1	Flooded	3.6	Flooded	0.3	0.0	0.0	25	0	Flooded
7	009979STMP	008623IN	002718SMH	46	1.5	9.24	13.11	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	009992STMP	006428IN	006427IN	70	1.5	10.04	12.08	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	009994STMP	006430IN	006428IN	42	1.25	10.05	9.81	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	009998STMP	001990SMH	002009SMH	22	1.25	5.82	6.64	1.3	1.3	5.0	5.6	0.3	0.2	0.0	0.0	0	0	Insufficient Freeboard
7	010008STMP	006410IN	006411IN	9	1	3.26	4.07	2.6	3.1	Flooded	Flooded	Flooded	Flooded	1.6	0.1	1060	4	Flooded
7	010009STMP	006411IN	001834SMH	8	1	3.25	4.06	3.1	3.2	Flooded	Flooded	Flooded	Flooded	0.1	0.6	4	78	Flooded
7	010010STMP	001834SMH	001830SMH	72	1.25	10.23	8.34	3.2	4.1	Flooded	Flooded	Flooded	Flooded	0.6	2.0	78	4640	Flooded
7	010012STMP	001828SMH	006441IN	99	2.5	45.55	9.96	2.4	2.5	Flooded	Flooded	Flooded	Flooded	2.1	2.5	11278	31730	Flooded
7	010013STMP	001814SMH	001828SMH	23	2.5	68.94	13.9	2.4	2.4	Flooded	Flooded	Flooded	Flooded	2.3	2.1	22046	11278	Flooded
7	010529STMP	002088SMH	000416IO	20	2	10.03	-0.36	54.9	54.9	5.9	-	0.1	-	0.0	0.0	0	0	Insufficient Freeboard
7	010530STMP	002087SMH	002088SMH	175	1	-0.83	-1.01	54.9	54.9	Flooded	6.9	Flooded	0.1	46.0	0.0	19796	0	Flooded
7	010531STMP	006866IN	002087SMH	75	1.5	-4.34	-2.4	54.8	54.9	Flooded	Flooded	Flooded	Flooded	47.6	46.0	21199	19796	Flooded
7	010532STMP	006867IN	006866IN	137	1.25	-2.28	-1.81	54.4	54.8	Flooded	Flooded	Flooded	Flooded	54.1	47.6	37435	21199	Flooded
7	010533STMP	006868IN	006867IN	32	1.25	1.47	1.35	54.3	54.4	Flooded	Flooded	Flooded	Flooded	54.0	54.1	37472	37435	Flooded
7	010539STMP	000159CB	001990SMH	25	1	5.78	11.26	1	1.3	Flooded	5.3	Flooded	0.3	0.6	0.0	2623	0	Flooded
7	010540STMP	000161CB	000162CB	14	0.833	5.04	9.07	0.9	0.9	Flooded	2.9	Flooded	0.1	0.9	0.0	3430	0	Flooded
7	010542STMP	006607IN	006608IN	24	1.25	5.78	4.65	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.6	0.5	397	444	Flooded
7	010543STMP	006608IN	001991SMH	42	1.5	8.02	4.49	0.6	0.7	Flooded	Flooded	Flooded	Flooded	0.5	0.6	444	675	Flooded
7	010544STMP	006609IN	006610IN	23	1.25	10.6	8.59	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.6	0.6	1457	926	Flooded
7	010545STMP	006610IN	001991SMH	12	1.25	11.5	9.23	0.6	0.7	Flooded	Flooded	Flooded	Flooded	0.6	0.6	926	675	Flooded
7	010559STMP	002724SMH	001340ND	85	1.25	11.64	9.73	0.1	0	0.6	-	-	-	0.0	0.0	0	0	Surcharged
7	010655STMP	006288IN	006287IN	24	1.25	7.63	6.14	1.5	1.6	Flooded	Flooded	Flooded	Flooded	1.3	1.4	4011	4251	Flooded
7	010656STMP	006287IN	001868SMH	27	1.25	7.81	7.23	1.6	1.7	Flooded	Flooded	Flooded	Flooded	1.4	1.4	4251	4988	Flooded
7	010659STMP	001867SMH	001869SMH	56	2	29.81	9.44	1.6	1.7	Flooded	Flooded	Flooded	Flooded	1.6	1.5	22242	10231	Flooded
7	010661STMP	001868SMH	001869SMH	16	1.25	11.65	9.35	1.7	1.7	Flooded	Flooded	Flooded	Flooded	1.4	1.5	4988	10231	Flooded
7	010662STMP	001869SMH	001813SMH	193	2	32.45	10.19	1.7	1.4	Flooded	1.5	Flooded	1.0	1.5	0.0	10231	0	Flooded
7	010666STMP	001873SMH	001870SMH	65	1.5	9.4	7.8	1.1	1.6	1.5	3.5	0.8	1.8	0.0	0.0	0	0	Insufficient Freeboard
7	010667STMP	001813SMH	001870SMH	19	2	33.5	16.69	1.4	1.6	1.5	3.0	1.0	1.8	0.0	0.0	0	0	Insufficient Freeboard
7	010670STMP	006296IN	001872SMH	12	1	6.94	8.72	1.1	1	Flooded	1.9	Flooded	0.5	0.8	0.0	4086	0	Flooded
7	010671STMP	001872SMH	001873SMH	26	1.25	6.91	6.54	1	1.1	1.6	1.8	0.5	0.8	0.0	0	0	0	Insufficient Freeboard
7	010674STMP	001874SMH	001876SMH	43	1.25	-8.26	-6.8	2	2	Flooded	Flooded	Flooded	Flooded	0.9	0.4	1150	133	Flooded
7	010675STMP	001876SMH	001877SMH	60	1.5	-9.9	7.08	2	2.3	Flooded	5.0	Flooded	-	0.4	0.0	133	0	Flooded
7	010678STMP	001877SMH	001814SMH	220	2.5	46.83	9.45	2.3	2.4	4.0	Flooded	-	Flooded	0.0	2.3	0	22046	Surcharged
7	010679STMP	001870SMH	001877SMH	282	2.5	39.8	10.06	1.6	2.3	2.5	4.0	1.8	-	0.0	0.0	0	0	Insufficient Freeboard
7	010689STMP	001797SMH	001867SMH	208	2	25.62	8.07	1.5	1.6	Flooded	Flooded	Flooded	Flooded	0.5	1.6	874	22242</td	

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
7	010706STMP	006806IN	002704SMH	91	4.5	141.44	9.8	2.1	2.1	Flooded	2.7	Flooded	0.3	1.6	0.0	5264	0	Flooded
7	010732STMP	006333IN	006334IN	39	1.5	26.95	15.12	0.8	0	Flooded	0.1	Flooded	1.3	0.8	0.0	15591	0	Flooded
7	010777STMP	006351IN	001815SMH	10	1	4.68	5.83	2.1	2.1	Flooded	Flooded	Flooded	Flooded	1.0	1.7	738	7965	Flooded
7	010778STMP	006352IN	001815SMH	30	1	5.5	6.91	1.8	2.1	Flooded	Flooded	Flooded	Flooded	1.8	1.7	8548	7965	Flooded
7	010781STMP	001816SMH	001817SMH	40	1	6.06	9.06	0.6	1.8	Flooded	Flooded	Flooded	Flooded	0.5	0.4	1625	286	Flooded
7	010782STMP	001817SMH	001815SMH	76	1	6.03	7.54	1.8	2.1	Flooded	Flooded	Flooded	Flooded	0.4	1.7	286	7965	Flooded
7	010783STMP	001815SMH	001834SMH	237	1.25	7.99	6.43	2.1	3.2	Flooded	Flooded	Flooded	Flooded	1.7	0.6	7965	78	Flooded
7	010815STMP	008482IN	008483IN	165	1	2.67	3.34	53.6	54.5	Flooded	Flooded	Flooded	Flooded	44.5	45.5	11084	17688	Flooded
7	010816STMP	008483IN	006861IN	39	1	-1.88	-2.34	54.5	54.6	Flooded	Flooded	Flooded	Flooded	45.5	45.7	17688	18779	Flooded
7	010817STMP	006861IN	002088SMH	174	1	0.83	1.03	54.6	54.9	Flooded	6.9	Flooded	0.1	45.7	0.0	18779	0	Flooded
7	010821STMP	002718SMH	002745SMH	193	1.25	9.21	11.52	0	0.6	-	5.4	-	0.0	0.0	0	0	0	Sufficient Capacity
7	010825STMP	002158SMH	001350ND	12	1.25	8.74	6.9	4.2	2.5	Flooded	Flooded	Flooded	Flooded	0.5	2.3	1313	8606	Flooded
7	010826STMP	008515IN	002158SMH	15	1.25	7.03	5.55	4.1	4.2	Flooded	Flooded	Flooded	Flooded	1.2	0.5	2023	1313	Flooded
7	010827STMP	008516IN	001352ND	54	1.25	8.5	6.85	2.5	2.5	Flooded	Flooded	Flooded	Flooded	2.3	2.0	5636	6519	Flooded
7	010831STMP	002726SMH	002728SMH	42	1.75	15.37	18.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	010836STMP	002728SMH	002734SMH	193	1.75	15.35	17.24	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	010855STMP	002099SMH	008426IN	143	1.25	9.78	8.03	0.7	0.4	Flooded	1.6	Flooded	0.8	0.7	0.0	5136	0	Flooded
7	010857STMP	008426IN	008746IN	114	1.25	9.99	10.01	0.4	0.5	1.6	3.7	0.8	1.6	0.0	0.0	0	0	Insufficient Freeboard
7	010865STMP	001995SMH	001996SMH	83	1.25	6.02	6.06	0.9	1	Flooded	Flooded	Flooded	Flooded	0.9	0.7	5077	825	Flooded
7	010870STMP	001203ND	002706SMH	134	4.5	135.85	10.76	2.1	2.3	2.8	3.3	1.6	0.5	0.0	0	0	0	Insufficient Freeboard
7	010871STMP	002706SMH	002707SMH	128	4.5	144.29	9.95	2.3	2.4	3.3	3.5	0.5	0.3	0.0	0.0	0	0	Insufficient Freeboard
7	010872STMP	002707SMH	002062SMH	70	4.5	144.28	9.66	2.4	2.4	3.5	Flooded	0.3	Flooded	0.0	1.9	0	8442	Insufficient Freeboard
7	010873STMP	002708SMH	002711SMH	304	3.5	111.74	11.5	2	2.4	5.5	Flooded	1.4	Flooded	0.0	0.8	0	8406	Insufficient Freeboard
7	010878STMP	002060SMH	002710SMH	61	3.5	97.95	10.47	0.7	1.1	5.0	5.3	-	-	0.0	0.0	0	0	Surcharged
7	010910STMP	002732SMH	002738SMH	44	1.25	9.42	7.62	0.1	0	0.3	1.1	-	-	0.0	0.0	0	0	Surcharged
7	010913STMP	008517IN	008516IN	25	1.25	3.76	6.29	2.4	2.5	Flooded	Flooded	Flooded	Flooded	2.3	2.3	3588	5636	Flooded
7	010916STMP	002159SMH	002161SMH	77	1.5	22.73	12.7	2.7	2.7	Flooded	Flooded	Flooded	Flooded	0.8	2.0	1775	22090	Flooded
7	010917STMP	007361IN	002159SMH	141	1.5	16.41	9.22	2.7	2.7	Flooded	Flooded	Flooded	Flooded	2.1	0.8	4778	1775	Flooded
7	010918STMP	002161SMH	002162SMH	278	4	96.47	7.64	2.7	2.7	Flooded	Flooded	Flooded	Flooded	2.0	1.5	22090	8230	Flooded
7	010920STMP	008523IN	001349ND	2	1.25	-6.12	-4.94	2.6	2.6	Flooded	2.8	Flooded	0.1	0.1	0.0	520	0	Flooded
7	010921STMP	008527IN	008525IN	66	1.25	7.01	7.36	1.3	2.6	Flooded	Flooded	Flooded	Flooded	0.6	1.1	2140	3661	Flooded
7	010923STMP	008525IN	001349ND	38	1.25	8.57	6.93	2.6	2.6	Flooded	2.8	Flooded	0.1	1.1	0.0	3661	0	Flooded
7	010925STMP	008529IN	002165SMH	27	1.25	12.44	10.06	0.3	0.1	1.5	0.5	0.3	1.2	0.0	0.0	0	0	Insufficient Freeboard
7	010940STMP	001784SMH	006438IN	270	3	18.34	7.29	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	010941STMP	006438IN	001786SMH	45	3	24.9	13.44	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	010942STMP	001787SMH	002299SMH	129	3	38.9	10.81	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	010943STMP	002702SMH	002700SMH	43	2.5	81.8	16.48	0.4	0.4	4.5	Flooded	0.3	Flooded	0.0	0.2	0	1667	Insufficient Freeboard
7	010945STMP	002701SMH	002702SMH	66	2.5	66.73	18.85	0.2	0.4	2.1	4.5	0.9	0.3	0.0	0.0	0	0	Insufficient Freeboard
7	010947STMP	006799IN	002702SMH	39	1.5	19.6	14.17	0.3	0.4	2.9	5.5	0.1	0.3	0.0	0.0	0	0	Insufficient Freeboard
7	010949STMP	002703SMH	006799IN	126	1.5	19.45	10.85	0.4	0.3	Flooded	2.9	Flooded	0.1	0.2	0.0	425	0	Flooded
7	010958STMP	008548IN	008546IN	21	1	9.55	11.81	0.3	0.4	Flooded	4.4	Flooded	0.1	0.2	0.0	342	0	Flooded
7	010961STMP																	

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
7	010992STMP	006704IN	006703IN	16	1.25	8.26	6.48	2.2	2.3	Flooded	Flooded	Flooded	Flooded	1.2	1.2	2392	2156	Flooded
7	010994STMP	001960SMH	001958SMH	102	2.25	38.86	9.67	1.8	2.1	Flooded	Flooded	Flooded	Flooded	1.5	1.7	10877	14633	Flooded
7	010995STMP	001958SMH	001959SMH	10	2.25	40.92	10.15	2.1	2	Flooded	Flooded	Flooded	Flooded	1.7	1.6	14633	8362	Flooded
7	010996STMP	001959SMH	001190ND	16	2.25	44.23	10.97	2	1.8	Flooded	Flooded	Flooded	Flooded	1.6	0.9	8362	9	Flooded
7	010998STMP	002028SMH	001960SMH	24	2.25	43.37	10.76	1.8	1.8	Flooded	Flooded	Flooded	Flooded	1.0	1.5	2018	10877	Flooded
7	011000STMP	002034SMH	002028SMH	112	2.25	43.39	10.76	1.7	1.8	Flooded	Flooded	Flooded	Flooded	0.9	1.0	1541	2018	Flooded
7	011003A	000282CB	001230ND	75	1.25	9.16	10.99	0.2	0.2	2.8	4.7	0.2	0.6	0.0	0.0	0	0	Insufficient Freeboard
7	011003B	001230ND	006843IN	127	1.25	9.12	8.11	0.2	0.3	4.7	Flooded	0.6	Flooded	0.0	0.2	0	243	Insufficient Freeboard
7	011027STMP	001918SMH	001956SMH	148	3.5	48.53	7.76	1.7	1.7	Flooded	Flooded	Flooded	Flooded	0.9	1.2	2162	5154	Flooded
7	011068STMP	008587IN	002181SMH	42	1.25	5.37	8.89	0.4	0.4	1.4	3.9	1.3	0.1	0.0	0	0	0	Insufficient Freeboard
7	011069STMP	008588IN	008587IN	22	1	4.13	8.43	0.4	0.4	0.8	1.6	-	1.3	0.0	0.0	0	0	Surcharged
7	011072STMP	002180SMH	002181SMH	20	2	65.56	20.64	0.4	0.4	Flooded	3.2	Flooded	0.1	0.4	0.0	3625	0	Flooded
7	011073STMP	008741IN	002180SMH	63	1.25	4.75	8.91	0	0.4	-	Flooded	-	Flooded	0.0	0.4	0	3625	Sufficient Capacity
7	011074STMP	008591IN	008588IN	46	1	4.15	6.45	0.2	0.4	0.6	0.8	-	-	0.0	0.0	0	0	Surcharged
7	011078STMP	002182SMH	002183SMH	54	2	72.04	24.86	0.5	0.5	Flooded	6.5	Flooded	0.8	0.4	0.0	2879	0	Flooded
7	011090STMP	006314IN	0001049ND	3	1	10.23	12.72	2.5	2.1	Flooded	Flooded	Flooded	Flooded	2.1	1.8	18711	31	Flooded
7	011091STMP	002050SMH	001799SMH	111	2.5	37.36	7.56	2.1	2.1	Flooded	Flooded	Flooded	Flooded	2.0	1.9	24343	14765	Flooded
7	011092STMP	006316IN	001799SMH	27	1.75	22.89	9.39	2.1	2.1	Flooded	Flooded	Flooded	Flooded	1.5	1.9	4315	14765	Flooded
7	011094STMP	001800SMH	006316IN	107	1.5	14.68	8.18	2	2.1	Flooded	Flooded	Flooded	Flooded	1.0	1.5	5849	4315	Flooded
7	011095STMP	001801SMH	001800SMH	153	1.5	11.89	6.6	1.9	2	5.0	Flooded	1.7	Flooded	0.0	1.0	0	5849	Insufficient Freeboard
7	011096STMP	006318IN	001801SMH	47	1.25	11.88	10.93	1	1.9	4.4	5.2	1.1	1.7	0.0	0.0	0	0	Insufficient Freeboard
7	011098STMP	006319IN	001802SMH	23	1	7.76	12.45	0.8	0.8	Flooded	4.4	Flooded	0.7	0.7	0.0	3142	0	Flooded
7	011099A	001802SMH	0001047ND	39	1.25	7.51	6.68	0.8	0.8	4.1	4.2	0.7	1.0	0.0	0.0	0	0	Insufficient Freeboard
7	011099B	0001047ND	001803SMH	33	1.25	7.05	7.28	0.8	0.8	4.2	4.4	1.0	0.9	0.0	0.0	0	0	Insufficient Freeboard
7	011102STMP	001807SMH	001803SMH	46	1	4.51	5.57	0.8	0.8	5.1	4.6	0.2	0.9	0.0	0.0	0	0	Insufficient Freeboard
7	011103STMP	006323IN	001807SMH	28	1	5.12	7.96	0.8	0.8	Flooded	5.1	Flooded	0.2	0.6	0.0	1333	0	Flooded
7	011110STMP	001808SMH	001809SMH	93	1.5	15.74	8.73	0.9	1	5.2	4.5	0.7	0.3	0.0	0.0	0	0	Insufficient Freeboard
7	011111STMP	006326IN	001808SMH	17	1	5.96	7.32	1	0.9	Flooded	5.7	Flooded	0.7	0.5	0.0	1272	0	Flooded
7	011113STMP	000326CB	001345ND	23	1	3.45	4.35	1.4	0	1.6	2.0	-	-	0.0	0.0	0	0	Surcharged
7	011115STMP	002733SMH	001346ND	27	1.25	4.41	5.97	0	0	-	1.8	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011117STMP	001806SMH	001853SMH	338	3	-7.5	-2.83	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011135STMP	006599IN	001985SMH	8	1	5.24	6.61	0.9	0.8	Flooded	1.6	Flooded	0.0	0.8	0.0	3353	0	Flooded
7	011136STMP	001985SMH	000153CB	40	1	4.7	12.3	0.8	1.2	1.6	4.5	0.0	0.6	0.0	0.0	0	0	Insufficient Freeboard
7	011154STMP	002677SMH	002029SMH	98	1.25	10.88	11.57	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011157STMP	002678SMH	002679SMH	37	1	12.72	16.49	0.3	0	Flooded	-	Flooded	-	0.2	0.0	365	0	Flooded
7	011160STMP	002679SMH	001954SMH	223	1.25	12.72	17.35	0	0.3	-	Flooded	-	Flooded	0.0	0.2	0	198	Sufficient Capacity
7	011163STMP	002043SMH	002045SMH	308	2	24.25	8.88	0.7	1	3.0	4.5	1.8	1.1	0.0	0.0	0	0	Insufficient Freeboard
7	011164A	006779IN	001212ND	13	1	3.16	3.94	1	1	3.5	3.4	1.7	0.9	0.0	0.0	0	0	Insufficient Freeboard
7	011164B	001212ND	006780IN	11	1	4.99	6.22	1	0.9	3.4	3.0	0.9	-	0.0	0.0	0	0	Insufficient Freeboard
7	011166STMP	001226ND	002107SMH	92	1.5	24.31	14.83	0.2	0.2	2.8	2.9	1.8	1.7	0.0	0.0	0	0	Insufficient Freeboard
7	011167STMP	000278CB	001226ND	23	1.25	7.8	11.51	0.1	0.2	1.5	3.0	1.1	1.8	0.0	0.0	0	0	Insufficient Freeboard
7	011168STMP	008361IN	000278CB	10														

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition	
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS		
7	011185STMP	007145IN	001348ND	5	1	3.84	4.83	1.9	0	2.0	1.8	-	-	0.0	0.0	0	0	Surcharged	
7	011186STMP	002224SMH	002743SMH	125	4	229.15	25.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011215STMP	000262CB	001212ND	115	0.667	2.92	8.01	1.6	1	Flooded	3.8	Flooded	0.9	1.5	0.0	5749	0	Flooded	
7	011216STMP	000263CB	002049SMH	18	0.833	6.26	11.02	1.2	1	Flooded	Flooded	Flooded	0.9	0.9	1917	8708	Flooded		
7	011217STMP	001809SMH	002049SMH	143	1.75	19.67	8.39	1	1	Flooded	4.3	Flooded	0.3	Flooded	0.0	0.9	0	8708	Insufficient Freeboard
7	011219STMP	006780IN	002049SMH	322	1.25	4.97	5.52	0.9	1	Flooded	2.8	Flooded	-	Flooded	0.0	0.9	0	8708	Surcharged
7	011223STMP	002051SMH	006806IN	108	4.5	140.49	10.41	2.1	2.1	Flooded	2.4	Flooded	0.1	Flooded	0.0	1.6	0	5264	Insufficient Freeboard
7	011228STMP	007091IN	007090IN	149	4	91.42	10.03	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011229STMP	007092IN	007091IN	144	4	82.55	7.96	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011230STMP	007093IN	007092IN	60	4	82.44	9.87	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011231STMP	007094IN	007093IN	135	1.5	10.06	8.76	0	0	-	1.0	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011233STMP	002150SMH	002151SMH	64	4	120.61	9.55	2.7	2.7	Flooded	Flooded	Flooded	Flooded	1.7	1.8	26987	19847	Flooded	
7	011234STMP	002162SMH	002150SMH	90	4	107.79	8.54	2.7	2.7	Flooded	Flooded	Flooded	Flooded	1.5	1.7	8230	26987	Flooded	
7	011239STMP	002151SMH	002152SMH	86	3.5833 x 5.6667	131.9	6.41	2.7	2.7	Flooded	Flooded	Flooded	Flooded	1.8	1.7	19847	25490	Flooded	
7	011242STMP	002152SMH	002156SMH	46	4	150.94	20.31	2.7	2.8	Flooded	Flooded	Flooded	Flooded	1.7	0.0	25490	110	Flooded	
7	011245STMP	001837SMH	001838SMH	31	2	18.3	14.65	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011246STMP	001838SMH	006432IN	52	3	18.31	9.28	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011247STMP	006432IN	001784SMH	170	3	18.35	8.74	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011252STMP	001785SMH	001787SMH	250	3	33.96	10.19	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011253STMP	001786SMH	001785SMH	93	3	24.93	9.74	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011285STMP	001851SMH	001850SMH	251	3	8.78	2.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011286STMP	001850SMH	002651SMH	86	3	8.74	8.46	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011287STMP	001853SMH	001851SMH	194	3	-14.09	-4.37	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011290STMP	001854SMH	002651SMH	26	2.25	32.47	13.64	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011313STMP	001955SMH	006694IN	39	1.5	22.62	13.68	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	011314STMP	006694IN	001189ND	175	1.5	22.61	18.21	0	0.2	-	Flooded	-	Flooded	0.0	0.1	0	7	Sufficient Capacity	
7	011316STMP	006696IN	000254CB	29	1	14.94	18.63	3.2	2	Flooded	Flooded	Flooded	Flooded	2.8	1.7	17089	5881	Flooded	
7	011318STMP	006697IN	000254CB	16	1	8.66	10.83	2	2	Flooded	Flooded	Flooded	Flooded	2.0	1.7	10365	5881	Flooded	
7	011319STMP	000254CB	001191ND	58	1.25	21.76	17.44	2	1.8	Flooded	7.9	Flooded	0.0	1.7	0.0	5881	0	Flooded	
7	011321STMP	000255CB	001192ND	35	1	4.2	8.73	1.6	1.7	Flooded	8.1	Flooded	0.1	1.0	0.0	1029	0	Flooded	
7	011322STMP	006700IN	000255CB	38	1	4.44	11.49	1.2	1.6	Flooded	Flooded	Flooded	Flooded	1.2	1.0	3425	1029	Flooded	
7	011323STMP	002033SMH	008552IN	129	1.5	9.13	5.74	0.1	0.1	1.9	1.8	-	1.5	0.0	0	0	0	Surcharged	
7	011325STMP	006701IN	000256CB	37	1	6.11	9.03	4	4.3	Flooded	Flooded	Flooded	Flooded	4.0	3.9	18138	7443	Flooded	
7	011327STMP	000256CB	006696IN	246	1	5.06	6.47	4.3	3.2	Flooded	Flooded	Flooded	Flooded	3.9	2.8	7443	17089	Flooded	
7	011342STMP	002208SMH	002747SMH	115	6.333 x 4	231.58	11.22	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.5	0.5	6358	12243	Flooded	
7	011344STMP	002746SMH	000330CB	13	1	13.66	16.63	2	2	Flooded	Flooded	Flooded	Flooded	0.6	0.5	1449	3431	Flooded	
7	011345STMP	000330CB	002747SMH	28	1.25	22.32	17.59	2	0.6	Flooded	Flooded	Flooded	Flooded	0.5	0.5	3431	12243	Flooded	
7	011346STMP	007167IN	002746SMH	25	1	7.46	9.19	1.7	2	Flooded	8.4	Flooded	-	Flooded	0.0	0.6	0	1449	Surcharged
7	011347STMP	002747SMH	002748SMH	102	6.333 x 4	214.24	10.38	0.6	0.6	Flooded	2.8	Flooded	1.0	0.5	0.0	12243	0	Flooded	
7	011348STMP	007163IN	002748SMH	63	1.75	23.76	15.3	0.6	0.6	2.2	7.4	1.3	1.0	0.0	0	0	0	Insufficient Freeboard	
7	011349STMP	007164IN	007171IN	81	1.25	8.18	8.89	0.3	0.5	Flooded	5.1	Flooded	0.6	0.1	0.0	113	0	Flooded	
7	011350STMP	007165IN	007164IN	106	1.25	8.69	10.97	0	0.3	-	Flooded	-	Flooded	0.0	0.1	0	113	Sufficient Capacity	
7	011351STMP	007166IN	007165IN																

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
7	011404STMP	006746IN	000259CB	24	1	4.39	6.9	1.7	2	Flooded	3.4	Flooded	0.3	0.8	0.0	1568	0	Flooded
7	011405STMP	000259CB	002035SMH	34	1.25	4.36	4.51	2	2	3.1	6.0	0.3	0.8	0.0	0	0	0	Insufficient Freeboard
7	011407STMP	006747IN	001199ND	62	2.5	67.79	13.89	2.1	2.1	Flooded	4.9	Flooded	0.5	2.1	0.0	50017	0	Flooded
7	011409STMP	002036SMH	006748IN	136	1.5	37.67	21.94	0.1	0.1	2.9	0.3	-	-	0.0	0.0	0	0	Surcharged
7	011410STMP	006748IN	002037SMH	34	1.5	37.68	22.5	0.1	0	0.3	-	-	-	0.0	0.0	0	0	Surcharged
7	011422STMP	001830SMH	001829SMH	17	1.25	10.38	8.48	4.1	2.5	Flooded	Flooded	Flooded	Flooded	2.0	1.8	4640	3563	Flooded
7	011423STMP	001831SMH	001829SMH	39	1.5	14.14	7.85	2.5	2.5	Flooded	Flooded	Flooded	Flooded	1.9	1.8	5924	3563	Flooded
7	011456STMP	006846IN	002123SMH	34	1	3.21	8.8	0.2	0.3	2.2	4.2	-	0.1	0.0	0.0	0	0	Surcharged
7	011457STMP	006847IN	000284CB	59	1	12.37	15.25	0.4	0.3	Flooded	Flooded	Flooded	Flooded	0.3	0.2	1074	858	Flooded
7	011458STMP	000285CB	001234ND	24	1.25	14.55	11.81	0.3	0	1.2	-	-	-	0.0	0.0	0	0	Surcharged
7	011460STMP	006848IN	000285CB	16	1	14.56	17.91	0.6	0.3	Flooded	1.5	Flooded	-	0.0	0.0	1	0	Flooded
7	011461STMP	002124SMH	002125SMH	68	1.5	28.14	17.04	0.3	0.5	3.3	3.4	0.2	0.5	0.0	0.0	0	0	Insufficient Freeboard
7	011462STMP	002125SMH	002126SMH	78	1.5	28.78	16.47	0.5	0.5	3.4	2.7	0.5	1.1	0.0	0.0	0	0	Insufficient Freeboard
7	011465A	006851IN	001232ND	29	1.25	11.39	9.31	0.5	0.6	Flooded	4.1	Flooded	0.1	0.5	0.0	4653	0	Flooded
7	011465B	001232ND	002125SMH	32	1.25	11.5	9.26	0.6	0.5	4.1	3.7	0.1	0.5	0.0	0.0	0	0	Insufficient Freeboard
7	011468STMP	000287CB	002126SMH	46	1	6.98	10.59	0.3	0.5	1.4	3.2	1.0	1.1	0.0	0.0	0	0	Insufficient Freeboard
7	011469STMP	006853IN	000287CB	16	1	6.99	9.74	0.2	0.3	1.3	1.4	1.1	1.0	0.0	0.0	0	0	Insufficient Freeboard
7	011475STMP	002202SMH	002188SMH	52	2	39.07	21.15	0	0.1	-	2.0	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011483STMP	008702IN	002202SMH	9	1.25	15.47	12.54	0.1	0	0.9	0.1	-	-	0.0	0.0	0	0	Surcharged
7	011562STMP	002218SMH	002220SMH	159	3	100.15	14.05	1.5	1.9	Flooded	Flooded	Flooded	Flooded	0.7	1.6	11854	62268	Flooded
7	011567STMP	002223SMH	008729IN	347	1.25	12.95	10.33	0.3	0.3	Flooded	1.4	Flooded	0.7	0.3	0.0	1172	0	Flooded
7	011568STMP	002748SMH	002225SMH	39	6.333 x 4	230.44	11.15	0.6	0.6	2.8	2.4	1.0	1.0	0.0	0.0	0	0	Insufficient Freeboard
7	011569STMP	008747IN	008753IN	148	1.25	5.15	7	0.1	0.4	0.5	3.0	-	1.3	0.0	0.0	0	0	Surcharged
7	011571STMP	008750IN	008751IN	27	1	9.44	13.47	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011572STMP	008751IN	002224SMH	126	1.5	9.43	12.79	0	0	-	1.2	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011573STMP	008753IN	008746IN	57	1.25	5.14	5.42	0.4	0.5	3.0	3.7	1.3	1.6	0.0	0.0	0	0	Insufficient Freeboard
7	011574STMP	008509IN	007123IN	35	3.167 x 5	148.9	14.64	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011609STMP	006416IN	000083CB	19	1	4.51	9.69	1.2	1.2	Flooded	Flooded	Flooded	Flooded	1.1	1.1	2544	2531	Flooded
7	011610STMP	000083CB	001833SMH	23	1	6.71	8.36	1.2	2	Flooded	Flooded	Flooded	Flooded	1.1	0.9	2531	816	Flooded
7	011612STMP	006418IN	000084CB	23	1	3.67	9.75	0	1.2	-	2.4	0.7	0.9	0.0	0.0	0	0	Sufficient Capacity
7	011613STMP	000084CB	001833SMH	31	1	3.66	6.87	1.2	2	2.4	Flooded	0.9	Flooded	0.0	0.9	0	816	Insufficient Freeboard
7	011618STMP	001836SMH	001835SMH	60	1.25	7.32	5.79	1.3	1.2	Flooded	Flooded	Flooded	Flooded	1.1	0.9	3275	690	Flooded
7	011621STMP	000087CB	001836SMH	22	1	3.26	6.1	1.2	1.3	4.8	Flooded	0.2	Flooded	0.0	1.1	0	3275	Insufficient Freeboard
7	011625STMP	000088CB	001836SMH	32	1	6.04	9.75	1.2	1.3	Flooded	Flooded	Flooded	Flooded	0.7	1.1	1262	3275	Flooded
7	011626A	001833SMH	0001053ND	56	1.5	13.24	7.35	2	2	Flooded	Flooded	Flooded	Flooded	0.9	1.1	816	13	Flooded
7	011626B	0001053ND	001831SMH	256	1.5	12.88	7.15	2	2.5	Flooded	Flooded	Flooded	Flooded	1.1	1.9	13	5924	Flooded
7	011627STMP	001835SMH	001833SMH	238	1.25	7.79	6.17	1.2	2	Flooded	Flooded	Flooded	Flooded	0.9	0.9	690	816	Flooded
7	011628STMP	006409IN	001834SMH	31	1	9.72	12.22	3.7	3.2	Flooded	Flooded	Flooded	Flooded	3.5	0.6	24017	78	Flooded
7	011629STMP	006426IN	001837SMH	29	2	18.29	9.68	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011630STMP	006427IN	006426IN	262	2	10.02	5.93	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011631STMP	001991SMH	006611IN	93	1.5	13.67	7.63	0.7	0.7	Flooded	Flooded	Flooded	Flooded	0.6	0.5	675	908	Flooded
7	011636A	001977SMH	001145ND	173	1.25	11.54	9.2	2.1	2.1	Flooded								

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
7	011654STMP	002053SMH	002703SMH	143	1.5	13.25	10.25	0	0.4	-	Flooded	-	Flooded	0.0	0.2	0	425	Sufficient Capacity
7	011656STMP	008317IN	002712SMH	26	1.25	6.3	10.57	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011659STMP	002713SMH	002714SMH	163	2	57.29	23.73	0	0.1	-	0.9	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011665STMP	007078IN	002150SMH	141	2	-13.28	-4.17	2.6	2.7	Flooded	Flooded	Flooded	Flooded	0.5	1.7	619	26987	Flooded
7	011667STMP	007081IN	007170IN	65	1	3.89	9.71	0	0	-	0.9	1.8	-	0.0	0.0	0	0	Sufficient Capacity
7	011669STMP	007082IN	007086IN	300	3	35.51	6.73	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011677STMP	002059SMH	002060SMH	28	1.5	25.66	14.01	2.1	0.7	8.8	7.0	-	-	0.0	0.0	0	0	Surcharged
7	011678STMP	002061SMH	002060SMH	37	3	78.86	11.06	0.6	0.7	5.3	5.5	-	-	0.0	0.0	0	0	Surcharged
7	011680STMP	002062SMH	001213ND	24	4.5	142.6	9.06	2.4	2.4	Flooded	3.7	Flooded	0.5	1.9	0.0	8442	0	Flooded
7	011681STMP	001213ND	002187SMH	201	4.5	146.04	9.22	2.4	2.5	3.7	Flooded	0.5	Flooded	0.0	2.4	0	43344	Insufficient Freeboard
7	011687STMP	000153CB	001986SMH	39	1.25	4.51	8.81	1.2	1.6	4.3	6.9	0.6	0.6	0.0	0.0	0	0	Insufficient Freeboard
7	011697STMP	001829SMH	001788SMH	148	1.75	18.82	8.19	2.5	2.5	Flooded	Flooded	Flooded	Flooded	1.8	2.4	3563	24142	Flooded
7	011698STMP	006441IN	001788SMH	48	3 x 5	45.59	4.63	2.5	2.5	Flooded	Flooded	Flooded	Flooded	2.5	2.4	31730	24142	Flooded
7	011699STMP	006442IN	001788SMH	13	1.25	9.69	7.78	2.8	2.5	Flooded	Flooded	Flooded	Flooded	2.4	2.4	8675	24142	Flooded
7	011700STMP	001788SMH	001789SMH	149	2.5	50.53	11.47	2.5	2.5	Flooded	Flooded	Flooded	Flooded	2.4	2.2	24142	4476	Flooded
7	011702STMP	006443IN	000089CB	34	1.25	4.39	3.51	2.8	3	5.2	Flooded	0.2	Flooded	0.0	2.4	0	4541	Insufficient Freeboard
7	011703STMP	000089CB	001054ND	5	1.25	10.56	8.39	3	2.5	Flooded	Flooded	Flooded	Flooded	2.4	2.2	4541	20	Flooded
7	011718STMP	001790SMH	001791SMH	305	1.25	10.27	8.37	0.3	0.3	Flooded	3.9	Flooded	-	0.1	0.0	137	0	Flooded
7	011725STMP	006451IN	001854SMH	110	2	20.81	13.83	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011726STMP	001792SMH	006451IN	7	2	20.82	9.98	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011727STMP	001793SMH	001792SMH	161	1.25	8.37	8.95	0	0	-	0.1	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011830STMP	006563IN	000116CB	16	0.833	9.7	16.99	1.1	0.9	Flooded	2.4	Flooded	-	0.8	0.0	5941	0	Flooded
7	011838STMP	000116CB	001915SMH	22	1	9.7	12.31	0.9	0.1	2.2	1.0	-	-	0.0	0.0	0	0	Surcharged
7	011839STMP	000238CB	001915SMH	40	1	7.89	14.09	0	0.1	-	1.0	-	-	0.0	0.0	0	0	Sufficient Capacity
7	011840STMP	006564IN	000238CB	10	0.833	7.87	14.4	0.5	0	Flooded	-	Flooded	-	0.3	0.0	472	0	Flooded
7	011841STMP	000239CB	001916SMH	33	1	9.86	12.4	0.3	0.1	2.3	1.5	1.7	-	0.0	0.0	0	0	Insufficient Freeboard
7	011842STMP	000240CB	001916SMH	8	1	3.8	4.82	0.2	0.1	1.2	1.5	-	-	0.0	0.0	0	0	Surcharged
7	011844STMP	001915SMH	001916SMH	32	1.75	17.45	10.75	0.1	0.1	0.3	0.7	-	-	0.0	0.0	0	0	Surcharged
7	011845STMP	006665IN	006666IN	10	1	6.39	8.04	1.1	1	Flooded	Flooded	Flooded	Flooded	1.0	0.9	4953	1071	Flooded
7	011846STMP	006666IN	000241CB	113	1	5.87	9.32	1	1.5	Flooded	Flooded	Flooded	Flooded	0.9	1.5	1071	7097	Flooded
7	011847STMP	000241CB	000242CB	50	1	8.62	10.82	1.5	1.5	Flooded	Flooded	Flooded	Flooded	1.5	1.1	7097	2070	Flooded
7	011849STMP	000242CB	001917SMH	44	1.25	12.07	10.51	1.5	1.6	Flooded	Flooded	Flooded	Flooded	1.1	1.1	2070	6557	Flooded
7	011897STMP	002744SMH	002208SMH	92	6.333 x 4	300.67	14.51	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.0	0.5	75	6358	Flooded
7	011899STMP	002745SMH	002207SMH	25	1.25	14	11.11	0.6	0.6	5.4	5.5	0.0	0.1	0.0	0	0	0	Insufficient Freeboard
7	011902STMP	007152IN	007153IN	5	1	6.66	8.27	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.5	0.5	559	691	Flooded
7	011903STMP	007153IN	007154IN	10	1	7.64	9.5	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.5	0.5	691	1705	Flooded
7	011907STMP	000331CB	002225SMH	92	1	6	10.27	0.3	0.6	1.7	7.7	1.3	1.0	0.0	0	0	0	Insufficient Freeboard
7	011908STMP	000332CB	002225SMH	38	1.25	1.45	5.61	0.5	0.6	0.6	7.4	-	1.0	0.0	0	0	0	Surcharged
7	012020STMP	000243CB	001113ND	39	1.5	9.88	7.88	1.4	1.6	Flooded	7.5	Flooded	0.0	0.2	0.0	503	0	Flooded
7	012022STMP	006670IN	000243CB	60	1.25	6.65	7.46	1.2	1.4	Flooded	Flooded	Flooded	Flooded	0.8	0.2	1289	503	Flooded
7	012023STMP	007063IN	007170IN	144	1.5	5.58	6.3	0	0	-	0.4	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012029A	006843IN	001231ND	71	1.25	12.49	9.92	0.3	0.3	Flooded	Flooded	Flooded	Flooded	0.2	0.2	243	6	Flooded</

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
7	012058STMP	001181ND	002026SMH	124	2.5	34.82	7.01	1.3	1.5	4.9	Flooded	0.3	Flooded	0.0	0.5	0	1273	Insufficient Freeboard
7	012061STMP	000180CB	001181ND	30	1	7.97	11.69	1.1	1.3	Flooded	6.4	Flooded	0.3	0.7	0.0	1149	0	Flooded
7	012065STMP	000181CB	001180ND	27	0.833	4.48	10.31	1.3	1.4	Flooded	6.5	Flooded	0.5	0.8	0.0	863	0	Flooded
7	012067STMP	000182CB	002027SMH	46	0.833	3.14	5.51	1.6	1.6	6.3	Flooded	0.2	Flooded	0.0	1.0	0	8003	Insufficient Freeboard
7	012068STMP	006663IN	000182CB	55	0.833	3.17	7.69	1.3	1.6	Flooded	6.3	Flooded	0.2	0.6	0.0	1085	0	Flooded
7	012070STMP	002027SMH	001917SMH	250	3	42.74	6.08	1.6	1.6	Flooded	Flooded	Flooded	1.0	1.1	8003	6557	Flooded	
7	012071STMP	001179ND	002027SMH	13	1.25	6.4	5.2	1.2	1.6	Flooded	Flooded	Flooded	0.6	1.0	5	8003	Flooded	
7	012082STMP	002194SMH	002206SMH	112	2.5	66.85	13.67	2.8	2.7	Flooded	Flooded	Flooded	2.7	0.3	21142	2767	Flooded	
7	012083STMP	001356ND	002160SMH	195	2	32.16	10.13	3.3	2.6	Flooded	Flooded	Flooded	2.5	1.3	7729	8477	Flooded	
7	012086STMP	002196SMH	002197SMH	122	1.5	19.79	11.04	0.5	2.3	3.7	2.3	-	0.0	0.0	0	0	Surcharged	
7	012087STMP	002198SMH	002196SMH	71	1.25	16.2	12.93	0.4	0.5	Flooded	3.9	Flooded	-	0.2	0.0	599	0	Flooded
7	012199STMP	002008SMH	001181ND	112	2.5	28.85	5.8	1.3	1.3	Flooded	4.9	Flooded	0.3	0.2	0.0	115	0	Flooded
7	012200STMP	000169CB	002008SMH	47	1.25	11.54	12.77	0.9	1.3	Flooded	Flooded	Flooded	0.6	0.2	4199	115	Flooded	
7	012213STMP	006657IN	000177CB	14	1	11.39	14.24	1.8	1.8	Flooded	Flooded	Flooded	1.8	1.2	19838	4605	Flooded	
7	012214STMP	000177CB	002025SMH	25	1	11.87	14.8	1.8	1.6	Flooded	5.5	Flooded	0.0	1.2	0.0	4605	0	Flooded
7	012217STMP	002025SMH	002026SMH	19	1.25	11.92	12.19	1.6	1.5	5.3	Flooded	0.0	Flooded	0.0	0.5	0	1273	Insufficient Freeboard
7	012242STMP	001980SMH	001976SMH	56	1.25	10.02	7.99	2.1	2.1	Flooded	Flooded	Flooded	1.9	1.8	6623	5128	Flooded	
7	012243STMP	001976SMH	001977SMH	45	1.25	12.21	9.74	2.1	2.1	Flooded	Flooded	Flooded	1.8	1.4	5128	2145	Flooded	
7	012244STMP	001978SMH	001977SMH	10	1.25	7.36	5.86	2	2.1	Flooded	Flooded	Flooded	1.5	1.4	2616	2145	Flooded	
7	012245STMP	001979SMH	001978SMH	21	1.25	6.77	5.41	2	2	Flooded	Flooded	Flooded	1.4	1.5	1909	2616	Flooded	
7	012266STMP	001996SMH	001997SMH	85	1.25	7.73	11.14	1	1	Flooded	6.2	Flooded	0.6	0.7	0.0	825	0	Flooded
7	012268STMP	001997SMH	001998SMH	42	1.25	7.63	8.71	1	1.3	6.2	Flooded	Flooded	0.6	0.9	0	4606	Insufficient Freeboard	
7	012273STMP	000164CB	001157ND	18	1.25	5.74	4.5	1.6	1.6	8.1	8.1	0.1	0.3	0.0	0	0	Insufficient Freeboard	
7	012274STMP	006622IN	000164CB	20	1	6.07	7.35	1.7	1.6	Flooded	8.3	Flooded	0.1	0.8	0.0	3847	0	Flooded
7	012275STMP	001998SMH	002001SMH	226	2	21.52	6.72	1.3	1.6	Flooded	Flooded	Flooded	0.9	0.7	4606	1720	Flooded	
7	012276STMP	001157ND	001998SMH	72	1.5	13.54	7.46	1.6	1.3	7.8	Flooded	0.3	Flooded	0.0	0.9	0	4606	Insufficient Freeboard
7	012279STMP	001986SMH	001157ND	201	1.5	11.93	6.92	1.6	1.6	6.7	7.8	0.6	0.3	0.0	0	0	Insufficient Freeboard	
7	012289STMP	002003SMH	002002SMH	34	1.25	8.35	6.55	1	1.6	7.6	Flooded	0.9	Flooded	0.0	0.5	0	490	Insufficient Freeboard
7	012292STMP	006630IN	002003SMH	22	1.25	8.36	6.85	1.4	1	7.4	7.6	0.4	0.9	0.0	0	0	Insufficient Freeboard	
7	012297STMP	000167CB	002001SMH	37	1	7.32	11.03	1.2	1.6	5.3	Flooded	0.1	Flooded	0.0	0.7	0	1720	Insufficient Freeboard
7	012298STMP	006629IN	000167CB	15	0.833	7.31	12.99	1.2	1.2	Flooded	5.4	Flooded	0.1	1.2	0.0	8087	0	Flooded
7	012299STMP	002005SMH	006630IN	68	1.25	8.36	8.7	1.2	1.4	Flooded	7.4	Flooded	0.4	0.5	0.0	2529	0	Flooded
7	012303STMP	000236CB	001179ND	18	0.667	6.37	17.07	2.1	1.2	Flooded	Flooded	Flooded	1.7	0.6	11048	5	Flooded	
7	012322STMP	002052SMH	001205ND	183	1.5	8.61	5.36	1.6	2.1	1.3	5.7	-	0.4	0.0	0	0	Surcharged	
7	012334STMP	002684SMH	001948SMH	239	2.25	60.88	15.07	1.5	1.7	Flooded	Flooded	Flooded	1.4	1.6	58593	16001	Flooded	
7	012339STMP	000251CB	001948SMH	13	0.833	9.5	16.7	2.2	1.7	Flooded	Flooded	Flooded	1.8	1.6	10457	16001	Flooded	
7	012340STMP	001948SMH	001949SMH	43	2.25	61.44	15.34	1.7	1.7	Flooded	Flooded	Flooded	1.6	1.6	16001	12142	Flooded	
7	012341STMP	000252CB	001949SMH	12	0.833	4.91	8.85	2	1.7	Flooded	Flooded	Flooded	1.4	1.6	1013	12142	Flooded	
7	012342STMP	001949SMH	001950SMH	103	2.25	67.49	16.81	1.7	1.6	Flooded	Flooded	Flooded	1.6	0.3	12142	74	Flooded	
7	012343STMP	001950SMH	001953SMH	390	2.5	69.62	14.82	1.6	1.6	Flooded	Flooded	Flooded	0.3	0.9	74	10867	Flooded	
7	012344STMP	000253CB	001950SMH	39	1.25	6.12	8.17	1.5	1.6	1.7	Flooded	0.7	Flooded	0.0	0.3	0	74	Insufficient Freeboard
7	012345STMP	006691IN	000253CB	10	0.833	6.3</												

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
7	012370STMP	002032SMH	006725IN	132	1.25	14.09	11.26	0.3	0.2	Flooded	0.9	Flooded	-	0.0	0.0	41	0	Flooded
7	012379STMP	006762IN	002039SMH	55	1.25	9.51	16.88	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012382STMP	002039SMH	006765IN	134	1.25	9.49	15.66	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012383STMP	006765IN	002040SMH	120	1.25	9.49	13.26	0	0.2	-	Flooded	-	Flooded	0.0	0.2	0	713	Sufficient Capacity
7	012385STMP	002041SMH	002042SMH	45	2	57.06	19.76	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012386STMP	002042SMH	002713SMH	93	2	57.54	22.66	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012387STMP	001994SMH	002043SMH	219	2	20.15	7.26	0.6	0.7	2.7	3.0	1.1	1.8	0.0	0.0	0	0	Insufficient Freeboard
7	012390STMP	006770IN	002043SMH	32	1.5	4.12	6.81	0.3	0.7	0.8	3.5	-	1.8	0.0	0.0	0	0	Surcharged
7	012392STMP	000260CB	006774IN	43	1	5.43	11.26	0.7	1	3.1	5.6	-	-	0.0	0.0	0	0	Surcharged
7	012394STMP	006773IN	000260CB	50	0.833	5.49	12.43	0.7	0.7	Flooded	3.2	Flooded	-	0.7	0.0	2959	0	Flooded
7	012395STMP	002002SMH	002044SMH	221	2	29.71	9.26	1.6	1.6	Flooded	5.8	Flooded	-	0.5	0.0	490	0	Flooded
7	012396STMP	006774IN	002044SMH	18	1.25	5.59	5.16	1	1.6	5.4	6.6	-	-	0.0	0.0	0	0	Surcharged
7	012398STMP	002044SMH	002034SMH	338	2.5	38.58	7.76	1.6	1.7	5.3	Flooded	-	Flooded	0.0	0.9	0	1541	Surcharged
7	012401STMP	006778IN	002045SMH	14	1.25	5.34	4.24	1	1	5.0	5.3	-	1.1	0.0	0.0	0	0	Surcharged
7	012402STMP	002045SMH	002047SMH	46	2.25	29.51	9.01	1	1	4.3	5.3	1.1	0.6	0.0	0.0	0	0	Insufficient Freeboard
7	012404STMP	002046SMH	002047SMH	33	2	29.52	9.27	1.4	1	5.4	5.5	0.6	0.6	0.0	0.0	0	0	Insufficient Freeboard
7	012405STMP	002049SMH	002046SMH	115	2	29.12	9.14	1	1.4	Flooded	5.4	Flooded	0.6	0.9	0.0	8708	0	Flooded
7	012406STMP	002047SMH	002048SMH	18	3	47.55	9.07	1	1.3	4.5	Flooded	0.6	Flooded	0.0	0.5	0	770	Insufficient Freeboard
7	012409STMP	002696SMH	002705SMH	87	3	78.25	11.36	0.6	0.6	4.8	4.8	-	-	0.0	0.0	0	0	Surcharged
7	012410STMP	006789IN	002696SMH	181	3	78.04	10.92	0.6	0.6	Flooded	4.8	Flooded	-	0.0	0.0	38	0	Flooded
7	012411STMP	002697SMH	006789IN	84	3	77.88	10.87	0.6	0.6	Flooded	Flooded	Flooded	0.4	0.0	2673	38	Flooded	
7	012413STMP	006792IN	006791IN	21	3	92.29	18.12	0.5	0.6	Flooded	Flooded	Flooded	0.5	0.5	4866	6015	Flooded	
7	012414STMP	006791IN	002697SMH	31	3	100.8	14.13	0.6	0.6	Flooded	Flooded	Flooded	0.5	0.4	6015	2673	Flooded	
7	012415STMP	002700SMH	006792IN	118	2.5	75.78	16.5	0.4	0.5	Flooded	Flooded	Flooded	0.2	0.5	1667	4866	Flooded	
7	012416STMP	002698SMH	006792IN	43	1.25	19.41	15.53	0.6	0.5	Flooded	Flooded	Flooded	0.5	0.5	2090	4866	Flooded	
7	012422STMP	008323IN	002715SMH	33	1.25	6.96	13.55	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012424STMP	002715SMH	002716SMH	52	1.25	6.96	9.75	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012427STMP	002716SMH	002053SMH	96	1.5	13.25	11.17	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012428STMP	002712SMH	002716SMH	62	1.25	6.3	9.11	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012434STMP	008331IN	002055SMH	28	1.25	5.81	9.54	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012492STMP	002091SMH	000423IO	125	1.25	5.91	4.69	0.1	0	0.2	-	-	0.4	0.0	0.0	0	0	Surcharged
7	012500STMP	002102SMH	002686SMH	29	2	54.07	16.89	0.6	0.6	Flooded	5.7	Flooded	0.1	0.1	0.0	105	0	Flooded
7	012501STMP	000271CB	001225ND	18	0.833	7.23	12.98	0.7	0.6	Flooded	7.1	Flooded	0.1	0.4	0.0	1642	0	Flooded
7	012504STMP	008343IN	000271CB	9	0.833	7.17	12.6	0.7	0.7	Flooded	Flooded	Flooded	0.6	0.4	3449	1642	Flooded	
7	012510STMP	002107SMH	002102SMH	247	2	35.22	12.99	0.2	0.6	2.4	Flooded	1.7	Flooded	0.0	0.1	0	105	Insufficient Freeboard
7	012512STMP	000274CB	002102SMH	58	1	5.06	9.59	0.3	0.6	3.3	Flooded	1.4	Flooded	0.0	0.1	0	105	Insufficient Freeboard
7	012514STMP	008347IN	000274CB	17	0.833	5.03	9.54	0.3	0.3	3.4	3.5	0.1	1.4	0.0	0	0	0	Insufficient Freeboard
7	012515STMP	008348IN	008347IN	24	0.833	5.03	10.74	0.2	0.3	Flooded	3.4	Flooded	0.1	0.2	0.0	125	0	Flooded
7	012517STMP	000276CB	002103SMH	29	1.25	12.01	16.91	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012518STMP	008351IN	000276CB	33	0.833	12.01	21.43	0.4	0	5.7	-	1.6	-	0.0	0.0	0	0	Insufficient Freeboard
7	012524STMP	002116SMH	002115SMH	146	1.5	28	17.52	0.6	0.7	Flooded	Flooded	Flooded	0.6	0.4	10644	710	Flooded	
7	012525STMP	006826IN	002115SMH	11	1.25	20.29	16.2	0.7	0.7	Flooded	Flooded	Flooded	0.6	0.4	1573	710	Flooded	
7	012526STMP	006827IN	006826IN	10	0.833	6.24												

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravity	Main FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
			US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
7	012549A	002133SMH	001236ND	255	1.5	11.37	16.32	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	012549B	001235ND	002134SMH	50	1.5	11.38	19.08	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	012549C	001236ND	001235ND	30	1.5	11.38	13.11	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	012555STMP	008372IN	000292CB	13	1	10.42	13.47	0.3	0	1.5	-	-	-	0.0	0.0	0	0	Surcharged	
7	012556STMP	000292CB	001240ND	39	1.25	10.43	13.72	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	012594STMP	002104SMH	002105SMH	105	1.25	11.33	15.52	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	012595STMP	002105SMH	002106SMH	108	1.25	11.32	16.44	0	0	-	0.1	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	012596STMP	002106SMH	002107SMH	40	1.25	11.12	14.18	0	0.2	0.1	3.2	-	1.7	0.0	0.0	0	0	Surcharged	
7	012599STMP	002110SMH	002111SMH	23	2.25	62.42	15.61	0.6	0.6	2.1	1.6	-	-	0.0	0.0	0	0	Surcharged	
7	012600STMP	002112SMH	002110SMH	180	2	53.92	16.92	0.9	0.6	5.6	2.3	0.7	-	0.0	0.0	0	0	Insufficient Freeboard	
7	012603STMP	002111SMH	002132SMH	124	2.25	62.42	16.34	0.6	0.2	1.6	0.3	-	-	0.0	0.0	0	0	Surcharged	
7	012606STMP	002113SMH	004032SMH	43	2	39.19	12.26	0.9	0.9	Flooded	Flooded	Flooded	Flooded	0.5	0.8	2759	20801	Flooded	
7	012608STMP	002114SMH	002113SMH	148	2	33.66	11.26	0.8	0.9	Flooded	Flooded	Flooded	Flooded	0.2	0.5	1037	2759	Flooded	
7	012613STMP	002169SMH	002167SMH	151	1.75	18.29	9.31	0	0.1	-	0.6	-	1.9	0.0	0.0	0	0	Sufficient Capacity	
7	012619STMP	002171SMH	008543IN	134	1.25	10.54	12.98	0	0.2	-	3.8	-	1.3	0.0	0.0	0	0	Sufficient Capacity	
7	012621STMP	008544IN	008543IN	38	1	9.72	12.25	0.2	0.2	3.4	4.0	0.7	1.3	0.0	0.0	0	0	Insufficient Freeboard	
7	012622STMP	008543IN	002172SMH	47	1.5	18.42	11.96	0.2	0.2	3.5	3.9	1.3	1.1	0.0	0.0	0	0	Insufficient Freeboard	
7	012623STMP	008546IN	008544IN	23	1	9.61	11.98	0.4	0.2	4.4	3.4	0.1	0.7	0.0	0.0	0	0	Insufficient Freeboard	
7	012624STMP	002176SMH	002177SMH	49	1.25	21.33	17.11	0.2	0.2	3.1	1.9	0.2	-	0.0	0.0	0	0	Insufficient Freeboard	
7	012627STMP	002191SMH	001852SMH	25	1.5	16.93	9.49	2.8	2.8	Flooded	Flooded	Flooded	Flooded	2.7	2.8	17158	32185	Flooded	
7	012628STMP	008723IN	002221SMH	14	1.5	22.63	12.73	2.5	2	Flooded	Flooded	Flooded	Flooded	0.9	1.7	2168	116202	Flooded	
7	012629STMP	008724IN	008723IN	23	1.25	22.62	18.14	2.2	2.5	Flooded	Flooded	Flooded	Flooded	2.1	0.9	42017	2168	Flooded	
7	012630STMP	008725IN	008726IN	18	1.25	20.16	16.04	2.3	2.3	Flooded	Flooded	Flooded	Flooded	1.9	1.8	18297	18935	Flooded	
7	012631STMP	008726IN	008727IN	17	1.25	24.56	19.54	2.3	1.8	Flooded	Flooded	Flooded	Flooded	1.8	1.7	18935	205056	Flooded	
7	012632STMP	008727IN	002221SMH	78	3 x 5	117.46	7.77	1.8	2	Flooded	Flooded	Flooded	Flooded	1.7	1.7	205056	116202	Flooded	
7	012634STMP	000440IO	001361ND	81	1.5	15.49	13.03	0.8	1.6	Flooded	Flooded	Flooded	Flooded	0.8	0.6	11307	209	Flooded	
7	012636STMP	002220SMH	002221SMH	51	3	82.33	11.57	1.9	2	Flooded	Flooded	Flooded	Flooded	1.6	1.7	62268	116202	Flooded	
7	012637STMP	006906IN	007089IN	13	2.5	11.12	8.01	0	0	-	0.5	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	012710STMP	002293SMH	000450IO	17	3	54.52	8.48	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	012711STMP	006892IN	002293SMH	30	3	54.51	8.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	012712STMP	002294SMH	006892IN	48	3	54.49	8.52	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	012728STMP	002153SMH	002156SMH	88	3.167 x 5	257.83	9.92	2.8	2.8	Flooded	Flooded	Flooded	Flooded	1.4	0.0	45303	110	Flooded	
7	012734STMP	007111IN	002154SMH	51	1	8.01	10.03	0.8	0.6	Flooded	1.9	Flooded	0.6	0.7	0.0	4978	0	Flooded	
7	012736STMP	002154SMH	002155SMH	43	1.25	8.07	7.94	0.6	0.4	1.6	2.4	0.6	0.5	0.0	0	0	0	Insufficient Freeboard	
7	012739STMP	007117IN	000428IO	307	2	20.41	6.56	0.3	0	1.1	-	0.8	0.4	0.0	0	0	0	Insufficient Freeboard	
7	012740STMP	002155SMH	007117IN	51	2	20.65	6.54	0.4	0.3	1.6	1.1	0.5	0.8	0.0	0	0	0	Insufficient Freeboard	
7	012741STMP	007110IN	002155SMH	179	2	16.03	5.08	0.3	0.4	Flooded	1.6	Flooded	0.5	0.2	0.0	423	0	Flooded	
7	012742A	002156SMH	001334ND	116	5	362.14	13.96	2.8	2.8	Flooded	2.5	Flooded	0.0	0.0	0.0	110	2	Flooded	
7	012742B	001334ND	007118IN	52	5	362.51	14.01	2.8	2.5	2.5	0.9	0.0	1.4	0.0	0.0	2	0	Insufficient Freeboard	
7	012746STMP	007118IN	000429IO	410	3.25 x 5.42	113.8	7	2.5	0	0.4	-	1.4	1.0	0.0	0.0	0	0	Insufficient Freeboard	
7	012748STMP	000321CB	001341ND	15	1.25	9.29	7.55	0.7	0	0.4	0.9	-	-	0.0	0.0	0	0	Surcharged	
7	012749STMP	000322CB	000321CB	121	1.25	9.29	13.18												

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
7	012773STMP	002184SMH	008598IN	208	1.5	23.74	14.94	0.2	0.5	3.9	6.3	-	0.6	0.0	0.0	0	0	Surcharged
7	012774STMP	008611IN	002184SMH	239	1.5	11.45	6.53	0.2	0.2	4.1	3.9	1.5	-	0.0	0.0	0	0	Insufficient Freeboard
7	012779STMP	002720SMH	002719SMH	31	1	11.66	15.33	0.1	0	0.4	-	-	-	0.0	0.0	0	0	Surcharged
7	012780A	002719SMH	001336ND	76	1.25	11.73	14.26	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012780B	001336ND	008614IN	100	1.25	11.6	15.02	0	0.1	-	Flooded	-	Flooded	0.0	0.0	0	25	Sufficient Capacity
7	012788STMP	000324CB	001338ND	6	1.25	8.23	6.64	0.9	0	2.2	1.8	-	-	0.0	0.0	0	0	Surcharged
7	012799STMP	002734SMH	002735SMH	103	1.75	23.76	16.22	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012802STMP	007148IN	002743SMH	18	1.5	7.59	5.21	0.4	0	0.8	1.6	-	-	0.0	0.0	0	0	Surcharged
7	012803STMP	002743SMH	002744SMH	184	4	237.11	26.68	0	0.6	-	Flooded	-	Flooded	0.0	0.0	0	75	Sufficient Capacity
7	012805STMP	007170IN	007082IN	192	2.5	27.17	6.71	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012806STMP	002749SMH	002161SMH	55	4	99.64	9.38	2.5	2.7	Flooded	Flooded	Flooded	Flooded	0.1	2.0	1425	22090	Flooded
7	012807STMP	002160SMH	002749SMH	58	3.5	111.5	12.54	2.6	2.5	Flooded	Flooded	Flooded	Flooded	1.3	0.1	8477	1425	Flooded
7	012815STMP	002757SMH	001353ND	58	1.5	22.51	14.34	2.5	2.5	Flooded	Flooded	Flooded	Flooded	2.5	2.2	14177	81	Flooded
7	012822STMP	002187SMH	002759SMH	41	4.5	143.81	8.99	2.5	2.5	Flooded	Flooded	Flooded	Flooded	2.4	2.4	43344	37842	Flooded
7	012823STMP	007328IN	000334CB	17	1	6.82	8.52	2.4	2.5	Flooded	Flooded	Flooded	Flooded	2.3	2.2	4501	4870	Flooded
7	012824STMP	002185SMH	001355ND	26	1.25	7.06	8.16	0.5	0.9	Flooded	Flooded	Flooded	Flooded	0.1	0.3	7	20	Flooded
7	012825STMP	002186SMH	002185SMH	52	1.25	7.15	11.94	0.1	0.5	0.4	Flooded	1.3	Flooded	0.0	0.1	0	7	Insufficient Freeboard
7	012826STMP	007329IN	000339CB	11	2.25	50.33	12.47	0.4	0.5	5.5	Flooded	0.7	Flooded	0.0	0.3	0	3873	Insufficient Freeboard
7	012827STMP	001355ND	000339CB	20	1	7.03	8.59	0.9	0.5	Flooded	Flooded	Flooded	Flooded	0.3	0.3	20	3873	Flooded
7	012852STMP	006895IN	006894IN	107	2.5	33.98	15.68	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012853STMP	006894IN	002295SMH	49	2.75	34.04	12.49	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012854STMP	002295SMH	000451IO	18	2.75	34.06	26.27	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012856STMP	002296SMH	006895IN	87	1.5	8.84	11.55	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012857STMP	000311CB	002296SMH	9	1.5	8.85	6.89	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012858STMP	006896IN	000311CB	61	1.5	8.84	7.61	0	0	-	2.7	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012861STMP	006899IN	001787SMH	16	1.25	5.02	3.92	0.1	0	0.2	0.3	-	-	0.0	0.0	0	0	Surcharged
7	012862STMP	006900IN	006899IN	57	1.25	5.03	8.52	0	0.1	-	0.2	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012863STMP	002298SMH	006901IN	49	1.25	4.32	10.38	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012864STMP	006901IN	002295SMH	15	1.25	4.31	5.1	0	0	-	0.4	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012870STMP	002299SMH	002294SMH	194	3	43.19	10.11	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012873STMP	002304SMH	000452IO	152	5	55.37	6.93	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012878STMP	000334CB	002187SMH	44	1	6.85	8.55	2.5	2.5	Flooded	Flooded	Flooded	Flooded	2.2	2.4	4870	43344	Flooded
7	012879STMP	007337IN	007336IN	31	4	50.36	5.88	0.3	0.3	2.3	2.7	-	-	0.0	0.0	0	0	Surcharged
7	012880STMP	007340IN	007337IN	107	4	39.05	4.03	0.3	0.3	2.3	2.3	-	-	0.0	0.0	0	0	Surcharged
7	012883STMP	002188SMH	007340IN	84	2	39.03	14.13	0.1	0.3	2.0	4.3	-	-	0.0	0.0	0	0	Surcharged
7	012895STMP	001852SMH	002195SMH	112	3	34.26	7.31	2.8	2.9	Flooded	Flooded	Flooded	Flooded	2.8	2.8	32185	21745	Flooded
7	012897STMP	002791SMH	002731SMH	155	2.5	83.64	16.96	1.3	0	2.1	-	0.2	-	0.0	0.0	0	0	Insufficient Freeboard
7	012901STMP	001953SMH	002791SMH	121	2.5	78.66	15.91	1.6	1.3	Flooded	2.1	Flooded	0.2	0.9	0.0	10867	0	Flooded
7	012904STMP	002792SMH	002752SMH	38	3.5	176.6	22.94	0	0	-	0.8	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012905STMP	002795SMH	002792SMH	228	3	141.16	21.77	0.4	0	1.0	-	1.0	-	0.0	0.0	0	0	Insufficient Freeboard
7	012906STMP	002793SMH	002792SMH	20	2	35.7	19.01	0	0	-	0.6	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012908STMP	002794SMH	002793SMH	195	1.75	35.64	15	0.9	0	2.1	-	0.0	-	0.0	0.0	0	0	Insufficient Freeboard
7	012913STMP	007012IN	002797SMH	30	3	136.66	19.22	0.4	0.4	2.9	Flooded</td							

TABLE 1

## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
7	012941STMP	002742SMH	007149IN	247	3	49.64	10.73	0	0.4	-	1.3	-	0.7	0.0	0.0	0	0	Sufficient Capacity
7	012944STMP	002225SMH	002209SMH	96	3.5833 x 5.6667	235.23	11.4	0.6	0.6	3.0	Flooded	1.0	Flooded	0.0	0.5	0	9416	Insufficient Freeboard
7	012945STMP	002209SMH	002210SMH	48	5.67 x 3.5	371.35	18	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.5	0.4	9416	2552	Flooded
7	012946STMP	002210SMH	001360ND	92	6.333 x 4	362.48	19.58	0.6	0.6	Flooded	1.9	Flooded	-	0.4	0.0	2552	0	Flooded
7	012947STMP	008713IN	008712IN	23	1.75	9.86	8.34	0.6	0.6	5.0	Flooded	0.1	Flooded	0.0	0.5	0	1300	Insufficient Freeboard
7	012948STMP	008712IN	002211SMH	12	1.25	13.45	10.69	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.5	0.6	1300	2779	Flooded
7	012949STMP	002211SMH	001357ND	21	1.25	18.18	14.34	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.6	0.5	2779	12	Flooded
7	012950STMP	002212SMH	002217SMH	54	2.5	95.96	19.28	0.6	0.7	5.9	6.1	0.6	1.7	0.0	0.0	0	0	Insufficient Freeboard
7	012961STMP	008510IN	008508IN	35	3.167 x 5	148.73	15.25	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	012962STMP	002221SMH	008509IN	239	3.167 x 5	147.47	11.52	2	0	Flooded	-	Flooded	-	1.7	0.0	116202	0	Flooded
7	013039STMP	002799SMH	002798SMH	258	1.25	20.28	17.16	0.5	0.7	Flooded	5.4	Flooded	0.9	0.4	0.0	5056	0	Flooded
7	013041STMP	002800SMH	002799SMH	198	1.25	14.24	14.22	0	0.5	-	Flooded	-	Flooded	0.0	0.4	0	5056	Sufficient Capacity
7	013044STMP	000231CB	002800SMH	127	1.25	14.25	18.49	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	013121STMP	006907IN	002851ND	90	1.75	5.65	8.5	0	0	-	0.8	-	-	0.0	0.0	0	0	Sufficient Capacity
7	013338STMP	003548SMH	001792SMH	105	1	12.44	7.82	0.4	0	2.1	0.3	-	-	0.0	0.0	0	0	Surcharged
7	013351STMP	002217SMH	002218SMH	248	3	95.96	13.44	0.7	1.5	5.6	Flooded	1.7	Flooded	0.0	0.7	0	11854	Insufficient Freeboard
7	013368STMP	002710SMH	002708SMH	48	3.5	97.93	10.08	1.1	2	5.3	5.5	-	1.4	0.0	0.0	0	0	Surcharged
7	013371STMP	002711SMH	003508SMH	68	3.5	107.41	11.09	2.4	2.4	Flooded	Flooded	Flooded	Flooded	0.8	1.6	8406	17446	Flooded
7	013372STMP	003508SMH	002759SMH	204	3.5	80.09	8.26	2.4	2.5	Flooded	Flooded	Flooded	Flooded	1.6	2.4	17446	37842	Flooded
7	014064STMP	001362ND	002221SMH	122	3.167 x 5	177.8	13.67	1.7	2	Flooded	Flooded	Flooded	Flooded	1.2	1.7	244	116202	Flooded
7	014065STMP	001362ND	008727IN	44	3.5	193.49	19.98	1.7	1.8	Flooded	Flooded	Flooded	Flooded	1.2	1.7	244	205056	Flooded
7	014090STMP	004050SMH	002209SMH	144	3.5	144.42	16.26	0.6	0.6	3.5	Flooded	1.2	Flooded	0.0	0.5	0	9416	Insufficient Freeboard
7	014091STMP	002207SMH	002069ND	36	3.5	92.29	11.9	0.6	0.6	3.2	4.1	0.1	0.6	0.0	0	0	0	Insufficient Freeboard
7	014092STMP	007154IN	004050SMH	60	1	7.8	9.69	0.6	0.6	Flooded	6.0	Flooded	1.2	0.5	0.0	1705	0	Flooded
7	014100STMP	002193SMH	001356ND	81	2	22.51	7.08	3.1	3.3	Flooded	Flooded	Flooded	Flooded	2.8	2.5	31732	7729	Flooded
7	014107STMP	000339CB	002755SMH	156	2.5	44.4	13.21	0.5	2.4	Flooded	Flooded	Flooded	Flooded	0.3	2.3	3873	22849	Flooded
7	014112STMP	008607IN	004038SMH	62	2.5	88.71	17.82	0.5	0.5	Flooded	4.8	Flooded	1.5	0.2	0.0	427	0	Flooded
7	014113STMP	004038SMH	002204SMH	44	2.5	88.71	19.85	0.5	0.6	4.8	5.9	1.5	0.4	0.0	0	0	0	Insufficient Freeboard
7	014114STMP	004039SMH	002701SMH	59	2.5	66.57	21.09	0	0.2	-	2.1	-	0.9	0.0	0	0	0	Sufficient Capacity
7	014115STMP	002714SMH	004039SMH	57	2	66.84	22.11	0.1	0	0.9	0.2	-	-	0.0	0.0	0	0	Surcharged
7	014122STMP	002115SMH	004032SMH	138	1.5	30.83	17.28	0.7	0.9	Flooded	Flooded	Flooded	Flooded	0.4	0.8	710	20801	Flooded
7	014123STMP	004032SMH	004033SMH	12	1.5	53.34	29.35	0.9	0.8	Flooded	2.0	Flooded	-	0.8	0.0	20801	0	Flooded
7	014124STMP	004033SMH	002112SMH	108	2	53.34	21.1	0.8	0.9	1.5	5.6	-	0.7	0.0	0	0	0	Surcharged
7	014146STMP	002048SMH	0001049ND	235	2.25	46.34	11.48	1.3	2.1	Flooded	Flooded	Flooded	Flooded	0.5	1.8	770	31	Flooded
7	014147STMP	0001049ND	002050SMH	30	2.25	42.73	10.64	2.1	2.1	Flooded	Flooded	Flooded	Flooded	1.8	2.0	31	24343	Flooded
7	014188STMP	002797SMH	001268ND	10	3	135.36	19.06	0.4	0.4	Flooded	1.8	Flooded	0.2	0.3	0.0	2590	0	Flooded
7	014189STMP	001268ND	002795SMH	195	3	135.38	19.78	0.4	0.4	1.8	1.0	0.2	1.0	0.0	0	0	0	Insufficient Freeboard
7	014190STMP	001240ND	002129SMH	253	1.5	21.8	16.17	0	0	-	1.1	-	-	0.0	0.0	0	0	Sufficient Capacity
7	014191STMP	002134SMH	001240ND	133	1.5	11.37	13.84	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	014192STMP	002128SMH	001233ND	52	1.75	38.11	22.45	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	014193STMP	001233ND	002129SMH	38	1.75	38.11	19.88	0	0	-	0.9	-	-	0.0	0.0	0	0	

TABLE 1  
Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
7	014205D	001200ND	001201ND	18	4	144.93	11.62	2.1	2.1	Flooded	3.0	Flooded	0.3	0.0	0.0	1	0	Flooded
7	014206STMP	001190ND	002035SMH	87	3.5	98.95	15.82	1.8	2	Flooded	3.7	Flooded	0.8	0.9	0.0	9	0	Flooded
7	014207STMP	001799SMH	001050ND	28	3.5	41.83	7.09	2.1	2.1	Flooded	Flooded	Flooded	Flooded	1.9	1.6	14765	72	Flooded
7	014208STMP	001050ND	006747IN	429	2.5	40.5	8.16	2.1	2.1	Flooded	Flooded	Flooded	Flooded	1.6	2.1	72	50017	Flooded
7	014209STMP	007123IN	000432IO	105	3.17 x 4.5	148.9	18.69	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	014210STMP	008508IN	000431IO	107	3.167 x 5	149.92	18.97	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	014211STMP	002221SMH	008510IN	237	3.167 x 5	148.73	11.66	2	0	Flooded	-	Flooded	-	1.7	0.0	116202	0	Flooded
7	014213STMP	001806SMH	004041SMH	39	3	-6.32	-3.61	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	014214STMP	004041SMH	004042SMH	100	3	-6.29	-2.99	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	014215STMP	004042SMH	004043SMH	100	3	-6.29	-1.91	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	014216STMP	004043SMH	001853SMH	99	3	-6.38	-2.32	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	014217STMP	002651SMH	002660SMH	157	4	41.16	4.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	014219STMP	002660SMH	001855SMH	213	4.5	83.53	8.75	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	014222STMP	001855SMH	001856SMH	137	5	92.44	5.73	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	014223STMP	002304SMH	000600IO	151	5	55.53	6.95	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
7	014224STMP	001054ND	001852SMH	409	2.5	52.93	10.68	2.5	2.8	Flooded	Flooded	Flooded	Flooded	2.2	2.8	20	32185	Flooded
7	014225STMP	001789SMH	001054ND	133	2.5	50.88	10.26	2.5	2.5	Flooded	Flooded	Flooded	Flooded	2.2	2.2	4476	20	Flooded
7	014226STMP	001160ND	002002SMH	75	2	26.92	8.38	1.6	1.6	7.6	Flooded	1.0	Flooded	0.0	0.5	0	490	Insufficient Freeboard
7	014227STMP	002001SMH	001160ND	49	2	26.99	8.39	1.6	1.6	Flooded	7.6	Flooded	1.0	0.7	0.0	1720	0	Flooded
7	014228STMP	001113ND	001918SMH	46	3.5	50.8	9.41	1.6	1.7	5.5	Flooded	0.0	Flooded	0.0	0.9	0	2162	Insufficient Freeboard
7	014229STMP	001917SMH	001113ND	56	3.5	47.39	7.58	1.6	1.6	Flooded	5.5	Flooded	0.0	1.1	0.0	6557	0	Flooded
7	014230STMP	001210ND	002061SMH	36	3	78.4	10.99	0.6	0.6	5.6	5.3	-	-	0.0	0.0	0	0	Surcharged
7	014231STMP	002705SMH	001210ND	62	3	79.35	12.15	0.6	0.6	4.8	5.6	-	-	0.0	0.0	0	0	Surcharged
7	014232STMP	002755SMH	002756SMH	24	1.75	30.42	10.69	2.4	2.5	Flooded	Flooded	Flooded	Flooded	2.3	2.4	22849	41573	Flooded
7	014235STMP	001353ND	002756SMH	289	4.5	167.26	11.04	2.5	2.5	Flooded	Flooded	Flooded	Flooded	2.2	2.4	81	41573	Flooded
7	014236STMP	002759SMH	001353ND	64	4.5	179.12	11.2	2.5	2.5	Flooded	Flooded	Flooded	Flooded	2.4	2.2	37842	81	Flooded
7	014237A	002756SMH	001350ND	268	4.5	192.16	12.02	2.5	2.5	Flooded	Flooded	Flooded	Flooded	2.4	2.3	41573	8606	Flooded
7	014237B	001350ND	001352ND	18	4.5	193.82	12.14	2.5	2.5	Flooded	Flooded	Flooded	Flooded	2.3	2.0	8606	6519	Flooded
7	014237C	001352ND	001351ND	20	4.5	196.15	12.29	2.5	2.5	Flooded	Flooded	Flooded	Flooded	2.0	1.3	6519	4961	Flooded
7	014237D	001351ND	002868ND	235	4.5	196.95	12.34	2.5	2.6	Flooded	Flooded	Flooded	Flooded	1.3	0.8	4961	7057	Flooded
7	014238STMP	004044SMH	007329IN	107	4	50.35	7.76	0.3	0.4	2.6	3.8	-	0.7	0.0	0	0	0	Surcharged
7	014239STMP	007336IN	004044SMH	43	4	50.36	4.43	0.3	0.3	2.7	2.6	-	-	0.0	0.0	0	0	Surcharged
7	014243STMP	001180ND	002027SMH	58	3	43.06	10.24	1.4	1.6	4.3	Flooded	0.5	Flooded	0.0	1.0	0	8003	Insufficient Freeboard
7	014244STMP	002026SMH	001180ND	188	3	38.8	5.44	1.5	1.4	Flooded	4.3	Flooded	0.5	0.5	0.0	1273	0	Flooded
7	014245STMP	001225ND	002102SMH	51	1.25	12.32	10.12	0.6	0.6	6.7	Flooded	0.1	Flooded	0.0	0.1	0	105	Insufficient Freeboard
7	014246STMP	002103SMH	001225ND	226	1.25	12.01	14.63	0	0.6	-	6.7	-	0.1	0.0	0	0	0	Sufficient Capacity
7	014247STMP	002685SMH	001187ND	130	2	45.56	14.31	0.7	1.4	Flooded	Flooded	Flooded	Flooded	0.6	1.2	11801	70	Flooded
7	014248STMP	001187ND	002684SMH	43	2.25	45.51	11.29	1.4	1.5	Flooded	Flooded	Flooded	Flooded	1.2	1.4	70	58593	Flooded
7	014249STMP	002683SMH	001166ND	21	2	35.68	11.22	1.4	1.4	Flooded	Flooded	Flooded	Flooded	1.2	1.2	25157	35	Flooded
7	014250STMP	001166ND	002684SMH	23	2	45.46	14.3	1.4	1.5	Flooded	Flooded	Flooded	Flooded	1.2	1.4	35	58593	Flooded
7	014251STMP	002730SMH	002752SMH	16	2	50.3	16.52	0	0	0.7	2.3	-	-	0.0	0.0	0	0	Surcharged
7	014252STMP	002737SMH	002738SMH	99	3	63.46	12.35	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity

TABLE 1

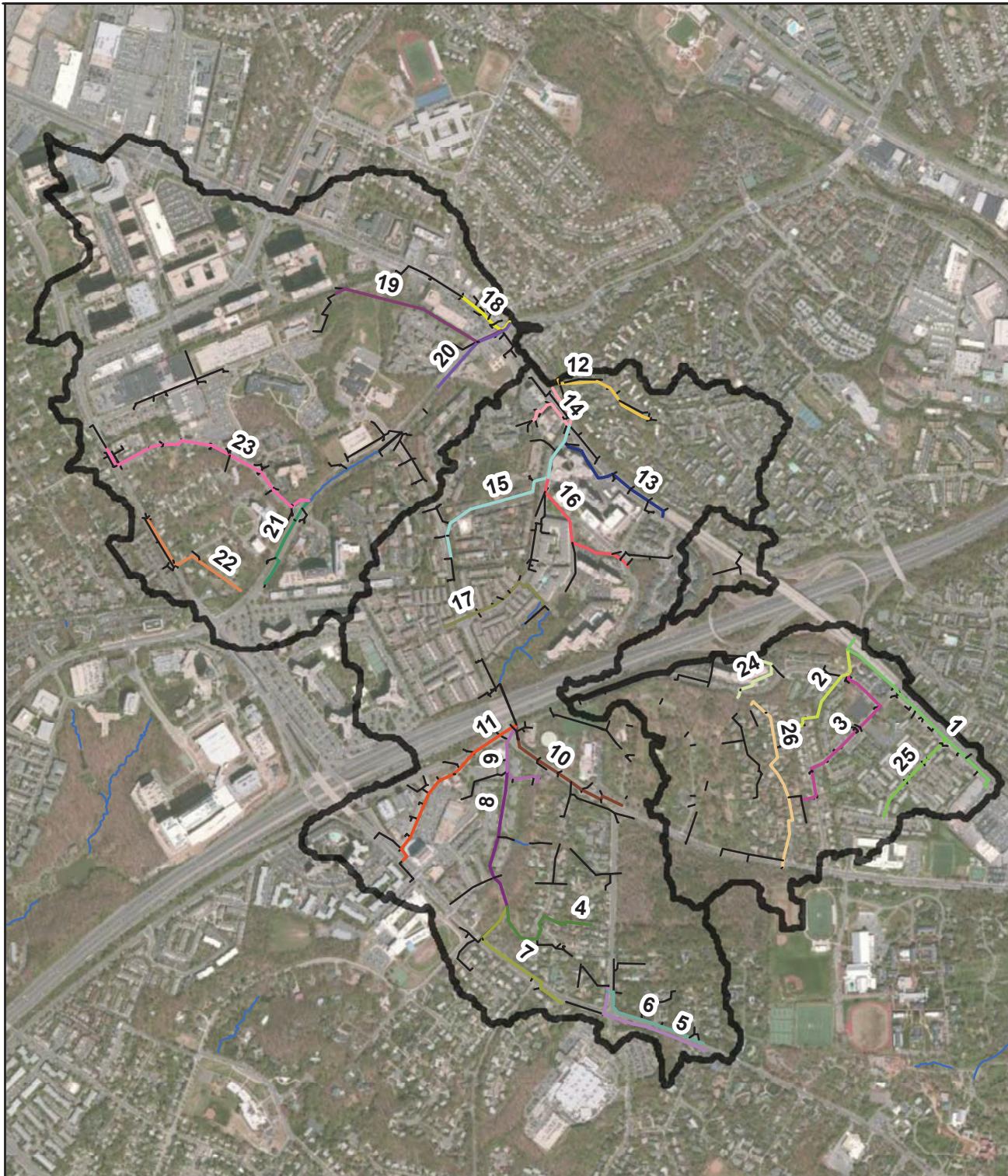
## Four Mile Run Detailed Hydraulic Model Results

Subshed	DGravity	Main FacilityID	Junction FacilityID			Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
			US	DS	Length (ft)				US	DS	US	DS	US	DS	US	DS	US	DS	
7	014263STMP	002741SMH	001348ND	82	3	106.49	18.15	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	014264STMP	001348ND	002742SMH	296	3	119.16	17.99	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	014265STMP	001852SMH	002194SMH	439	2.5	38.91	7.96	2.8	2.8	Flooded	Flooded	Flooded	Flooded	2.8	2.7	32185	21142	Flooded	
7	014266STMP	002749SMH	002163SMH	84	4	220.11	8.73	2.5	2.7	Flooded	Flooded	Flooded	Flooded	0.1	2.4	1425	71110	Flooded	
7	014267STMP	002163SMH	002750SMH	49	4	292.5	11.59	2.7	2.6	Flooded	Flooded	Flooded	Flooded	2.4	0.5	71110	33546	Flooded	
7	014269STMP	002751SMH	002750SMH	30	2.5	93.18	9.45	2.7	2.6	Flooded	Flooded	Flooded	Flooded	2.6	0.5	55544	33546	Flooded	
7	014271STMP	008523IN	002751SMH	90	2.5	22.87	6.41	2.6	2.7	Flooded	Flooded	Flooded	Flooded	0.1	2.6	520	55544	Flooded	
7	014272STMP	001349ND	002751SMH	90	2.5	23.34	6.15	2.6	2.7	1.6	Flooded	0.1	Flooded	0.0	2.6	0	55544	Insufficient Freeboard	
7	014273STMP	002166SMH	008523IN	215	2.5	21.79	4.41	2.6	2.6	Flooded	Flooded	Flooded	Flooded	0.0	0.1	55	520	Flooded	
7	014274STMP	002166SMH	001349ND	215	2.5	21.59	4.37	2.6	2.6	Flooded	1.6	Flooded	0.1	0.0	0.0	55	0	Flooded	
7	014275STMP	002165SMH	002166SMH	39	1.5	12.45	7.57	0.1	2.6	0.2	Flooded	1.2	Flooded	0.0	0.0	0	55	Insufficient Freeboard	
7	014277STMP	002167SMH	002166SMH	198	2	27.25	5.7	0.1	2.6	0.4	Flooded	1.9	Flooded	0.0	0.0	0	55	Insufficient Freeboard	
7	014279STMP	002168SMH	002167SMH	40	1	8.94	9.39	0	0.1	-	1.4	1.9	1.9	0.0	0.0	0	0	Sufficient Capacity	
7	014281STMP	002195SMH	002193SMH	133	2	43.12	6.81	2.9	3.1	Flooded	Flooded	Flooded	Flooded	2.8	2.8	21745	31732	Flooded	
7	014283STMP	002193SMH	002160SMH	275	2	29.65	9.35	3.1	2.6	Flooded	Flooded	Flooded	Flooded	2.8	1.3	31732	8477	Flooded	
7	014362A	001989SMH	001183ND	61	2	9.92	4.6	1.3	1.3	4.9	5.2	0.3	0.6	0.0	0.0	0	0	Insufficient Freeboard	
7	014362B	001183ND	001163ND	128	2	12.2	4.36	1.3	1.4	5.2	5.9	0.6	0.9	0.0	0.0	0	0	Insufficient Freeboard	
7	014362C	001163ND	002008SMH	15	2	12.22	3.82	1.4	1.3	5.9	Flooded	0.9	Flooded	0.0	0.2	0	115	Insufficient Freeboard	
7	014363STMP	002730SMH	002737SMH	29	3	59.8	18.97	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	014364STMP	002739SMH	002736SMH	123	3	80.18	12.36	0.1	0.2	0.3	0.5	-	-	0.0	0.0	0	0	Surcharged	
7	014366A	002752SMH	001346ND	402	4.5	200.23	13.78	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	014366B	001346ND	002754SMH	58	4.5	204.31	17.97	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	014376STMP	002206SMH	002868ND	27	2.5	36.49	7.63	2.7	2.6	Flooded	Flooded	Flooded	Flooded	0.3	0.8	2767	7057	Flooded	
7	014377STMP	002206SMH	002867ND	34	2.5	48.28	9.74	2.7	2.6	Flooded	Flooded	Flooded	Flooded	0.3	0.4	2767	3670	Flooded	
7	014378STMP	002868ND	002867ND	18	5	212.95	12.53	2.6	2.6	Flooded	Flooded	Flooded	Flooded	0.8	0.4	7057	3670	Flooded	
7	014379STMP	002867ND	002749SMH	20	5	253.7	16.09	2.6	2.5	Flooded	Flooded	Flooded	Flooded	0.4	0.1	3670	1425	Flooded	
7	014384A	001956SMH	001192ND	43	3.5	50.01	8	1.7	1.7	Flooded	5.6	Flooded	0.1	1.2	0.0	5154	0	Flooded	
7	014384B	001192ND	001191ND	220	3.5	53.42	8.54	1.7	1.8	5.6	5.7	0.1	0.0	0.0	0	0	0	Insufficient Freeboard	
7	014384C	001191ND	001957SMH	164	3.5	60.08	9.61	1.8	1.8	5.7	5.1	0.0	0.6	0.0	0.0	0	0	Insufficient Freeboard	
7	014389A	001856SMH	002851ND	18	5	101.54	4.98	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	014389B	002851ND	002304SMH	367	5	107.06	5.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	014390STMP	001360ND	001361ND	348	6.33 x 4	362.45	17.57	0.6	1.6	1.9	Flooded	-	Flooded	0.0	0.6	0	209	Surcharged	
7	014391STMP	001361ND	001362ND	39	5 x 3.17	370.21	28.38	1.6	1.7	Flooded	Flooded	Flooded	Flooded	0.6	1.2	209	244	Flooded	
7	014392STMP	002069ND	004050SMH	30	3.5 x 3	147.95	14.01	0.6	0.6	4.1	3.5	0.6	1.2	0.0	0.0	0	0	Insufficient Freeboard	
7	014393STMP	007149IN	002069ND	109	3.17 x 4.5	55.67	8.57	0.4	0.6	-	1.1	0.7	0.6	0.0	0.0	0	0	Insufficient Freeboard	
7	014394STMP	002742SMH	002070ND	243	3	78.87	17.82	0	0.4	-	1.9	-	1.9	0.0	0.0	0	0	Sufficient Capacity	
7	014395STMP	002070ND	002207SMH	66	3.5	78.87	15.46	0.4	0.6	1.4	3.2	1.9	0.1	0.0	0	0	Insufficient Freeboard		
7	014405STMP	009006IN	002277SMH	146	1.5	10.93	11.14	0	0.5	-	Flooded	-	Flooded	0.0	0.1	0	132	Sufficient Capacity	
7	014406STMP	009007IN	009006IN	77	1.5	10.94	9.48	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	014409STMP	001345ND	001348ND	84	4	228.21	23.06	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	014411STMP	001340ND	002178SMH	183	1.25	11.63	13.04	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
7	014412STMP	001341ND	002725SMH	149	1.25	9.29													

**TABLE 2**  
**Four Mile Run Outfall Boundary Conditions**

<b>Node ID</b>	<b>Location</b>	<b>Boundary Condition</b>
000079ND	FMR West	Type 1, Free Outfall
000181ND	FMR West	Type 1, Free Outfall
000436ND	FMR West	Type 1, Free Outfall
000437ND	FMR West	Type 1, Free Outfall
002023ND	FMR West	Type 1, Free Outfall
002878ND	FMR West	Type 1, Free Outfall
002011ND	FMR West	Type 1, Free Outfall
000020IO	FMR West	Type 1, Free Outfall
000186ND	FMR West	Type 1, Free Outfall
000187ND	FMR West	Type 1, Free Outfall
000415IO	FMR East	Computed Tide Coefficients
000429IO	FMR East	Computed Tide Coefficients
000606IO	FMR East	Computed Tide Coefficients
001106ND	FMR East	Type 1, Free Outfall
000414IO	FMR East	Computed Tide Coefficients
000416IO	FMR East	Computed Tide Coefficients
000417IO	FMR East	Type 1, Free Outfall
000418IO	FMR East	Type 1, Free Outfall
000419IO	FMR East	Type 1, Free Outfall
000420IO	FMR East	Type 1, Free Outfall
000422IO	FMR East	Computed Tide Coefficients
000423IO	FMR East	Type 1, Free Outfall
000426IO	FMR East	Computed Tide Coefficients
000427IO	FMR East	Computed Tide Coefficients
000428IO	FMR East	Computed Tide Coefficients
000605IO	FMR East	Computed Tide Coefficients
000431IO	FMR East	Type 1, Free Outfall
000432IO	FMR East	Type 1, Free Outfall
000450IO	FMR East	Computed Tide Coefficients
000451IO	FMR East	Computed Tide Coefficients
000452IO	FMR East	Computed Tide Coefficients
000454IO	FMR East	Type 1, Free Outfall
000456IO	FMR East	Type 1, Free Outfall
000457IO	FMR East	Type 1, Free Outfall
000458IO	FMR East	Type 1, Free Outfall
000463IO	FMR East	Type 1, Free Outfall
000464IO	FMR East	Type 1, Free Outfall
000465IO	FMR East	Type 1, Free Outfall
000466IO	FMR East	Type 1, Free Outfall
000600IO	FMR East	Computed Tide Coefficients





## Legend

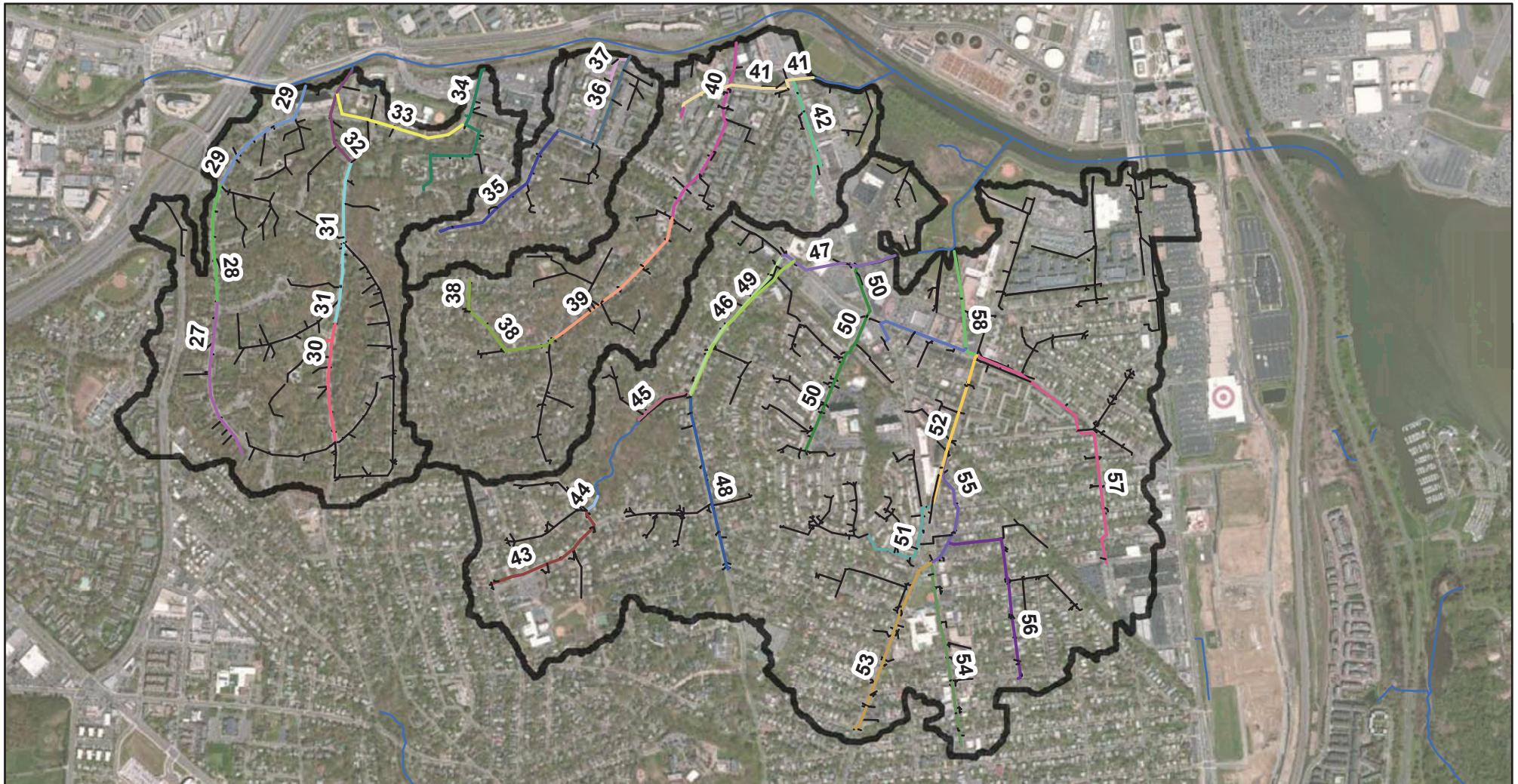
—	13
—	<Null>
—	14
—	15
—	16
—	17
—	18
—	19
—	20
—	21
—	22
—	23
—	24
—	25
—	26
—	City of Alexandria Streams
□	Subwatersheds

**Four Mile Run Profile Locations (West)**  
Four Mile Run Watershed Modeling Results  
Stormwater Capacity Analysis for FMR Watershed  
City of Alexandria, Virginia

0 750 1,500 3,000 Feet







## Legend

Profiles	32	39	46	53	City of Alexandria Streams
<Null>					Subwatersheds
27	33	40	47	54	
28	34	41	48	55	
29	35	42	49	56	
30	36	43	50	57	
31	37	44	51	58	
	38	45	52	59	

## Four Mile Run Profile Locations (East)

Four Mile Run Watershed Modeling Results  
*Stormwater Capacity Analysis for FMR Watershed  
 City of Alexandria, Virginia*

0 750 1,500 3,000 Feet





## FIGURE 1

## Profile 1 from 000076ND to 000079ND (Existing IDF, Existing Boundary Condition)

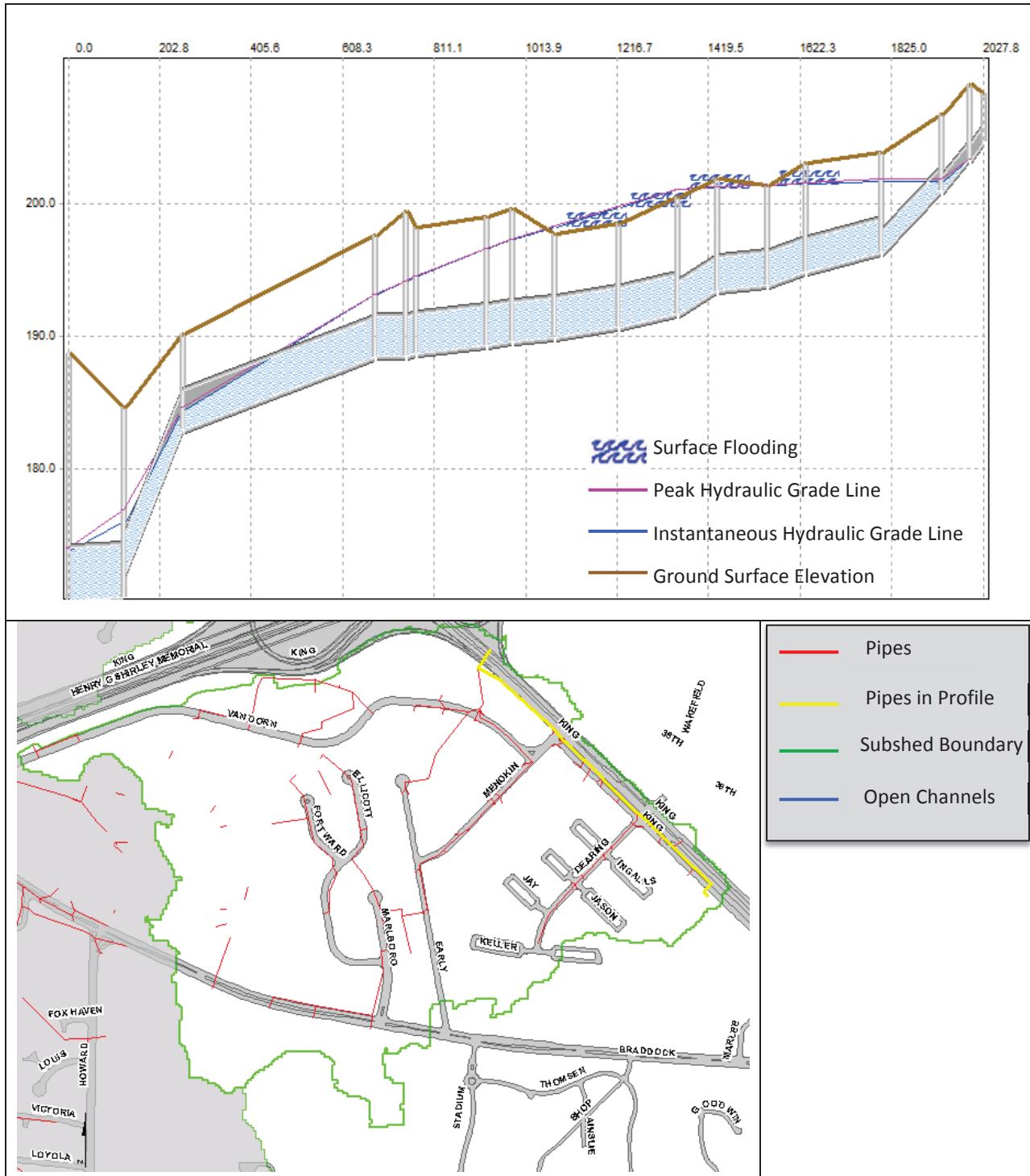


FIGURE 2

Profile 2 from 000383IN to 000483IN (Existing IDF, Existing Boundary Condition)

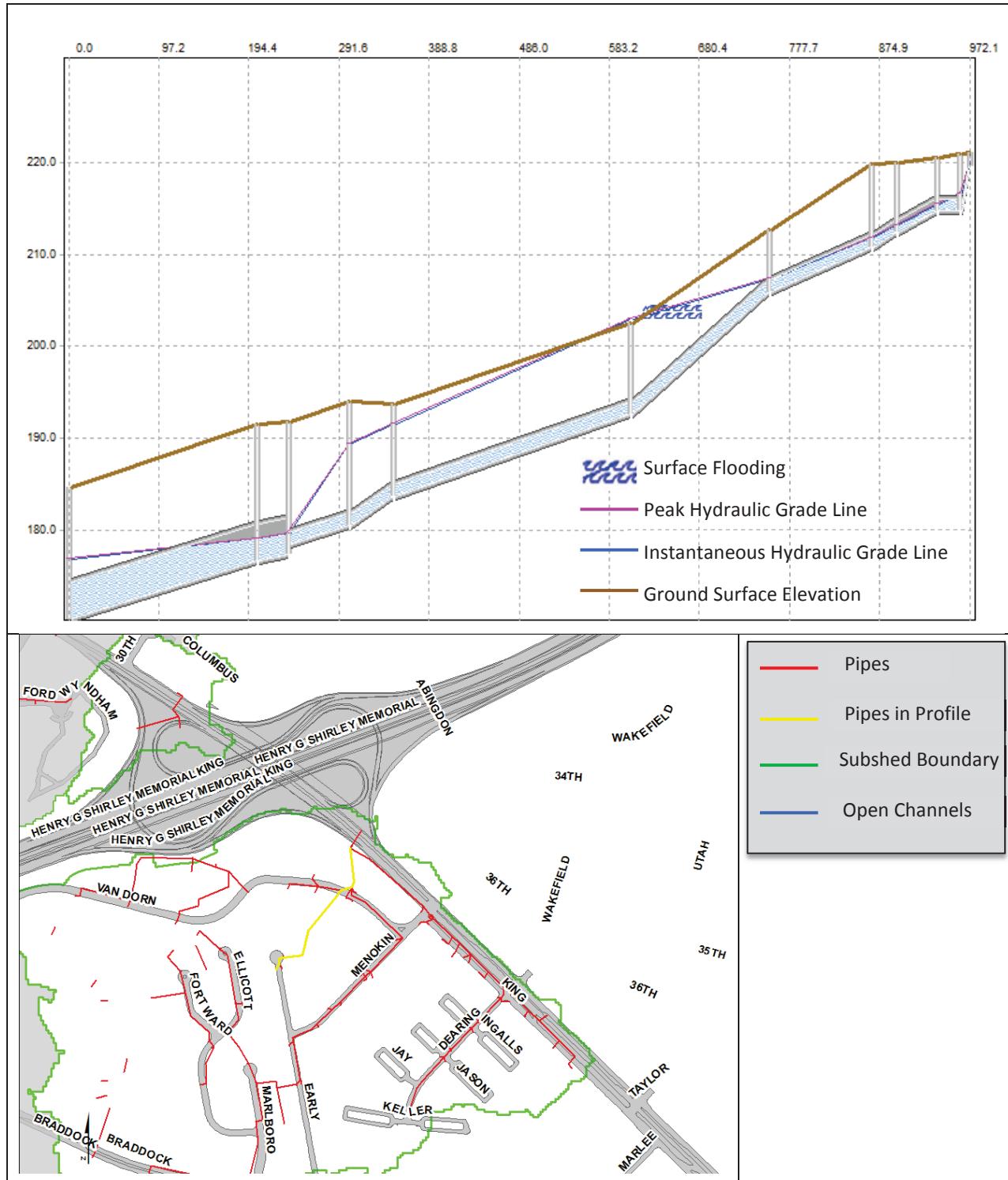


FIGURE 3

Profile 3 from 000453IN to 000181SMH (Existing IDF, Existing Boundary Condition)

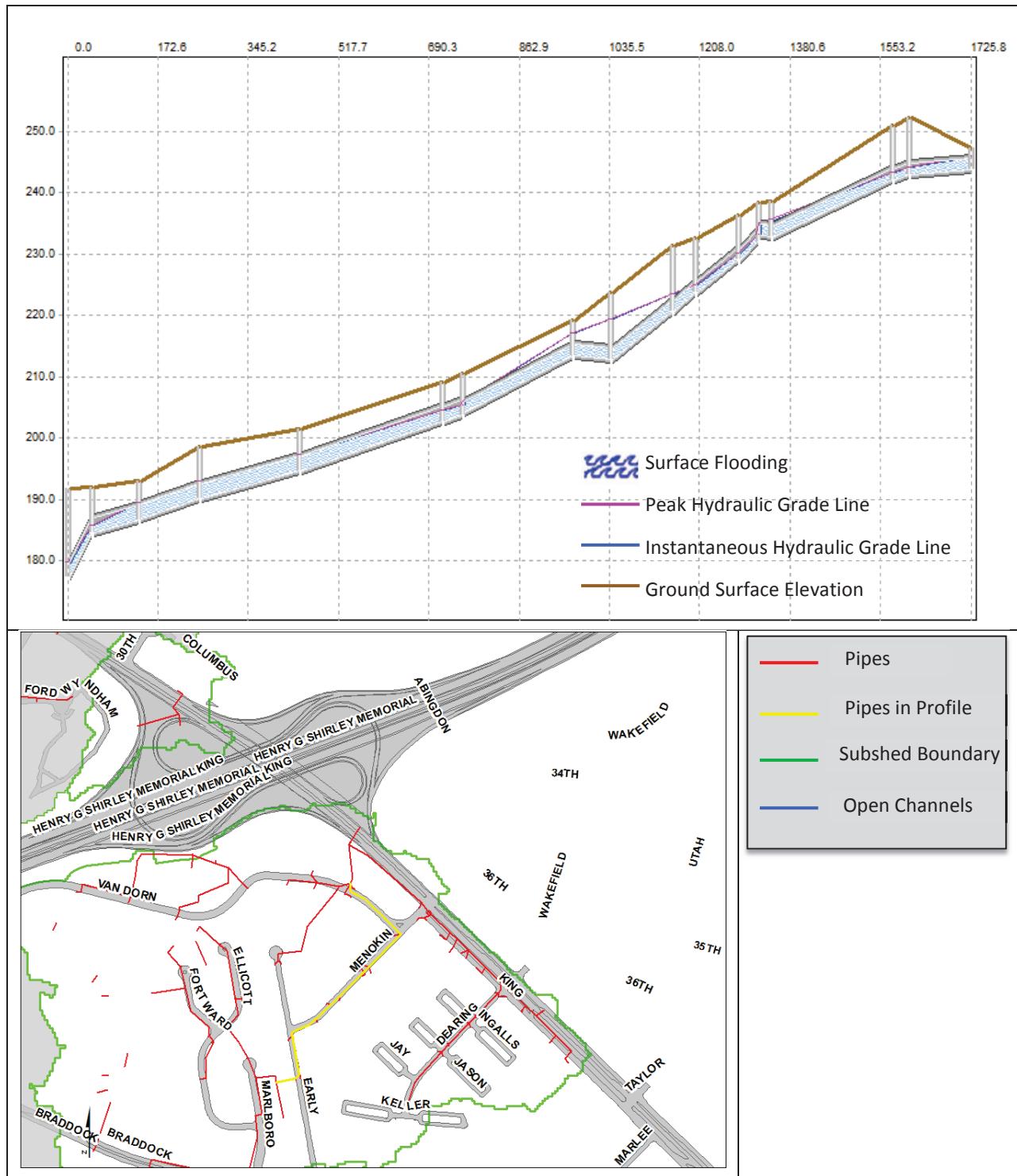


FIGURE 4

Profile 4 from 004631IN to 004651IN (Existing IDF, Existing Boundary Condition)

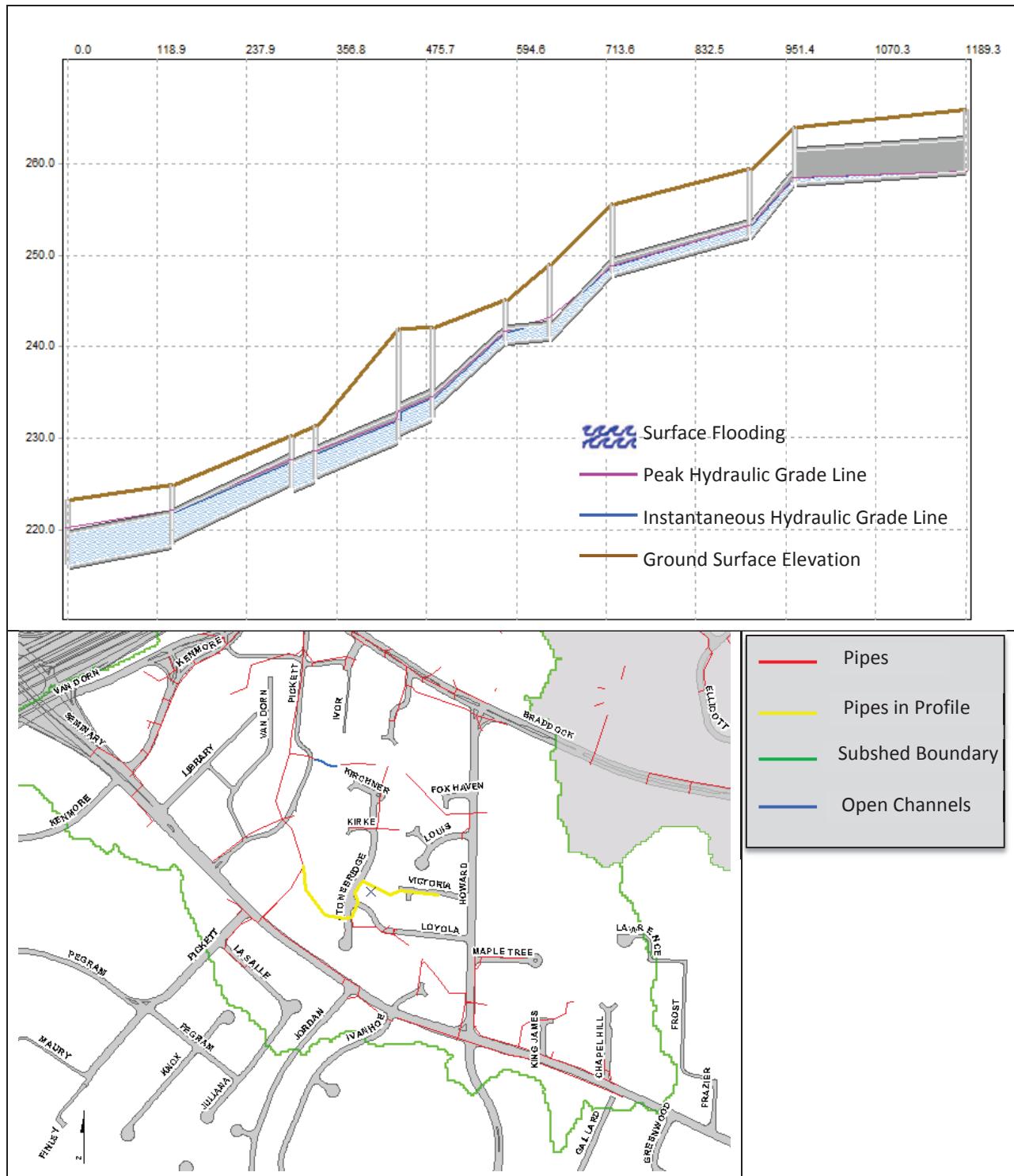


FIGURE 5

Profile 5 from 003732IN to 001196SMH (Existing IDF, Existing Boundary Condition)

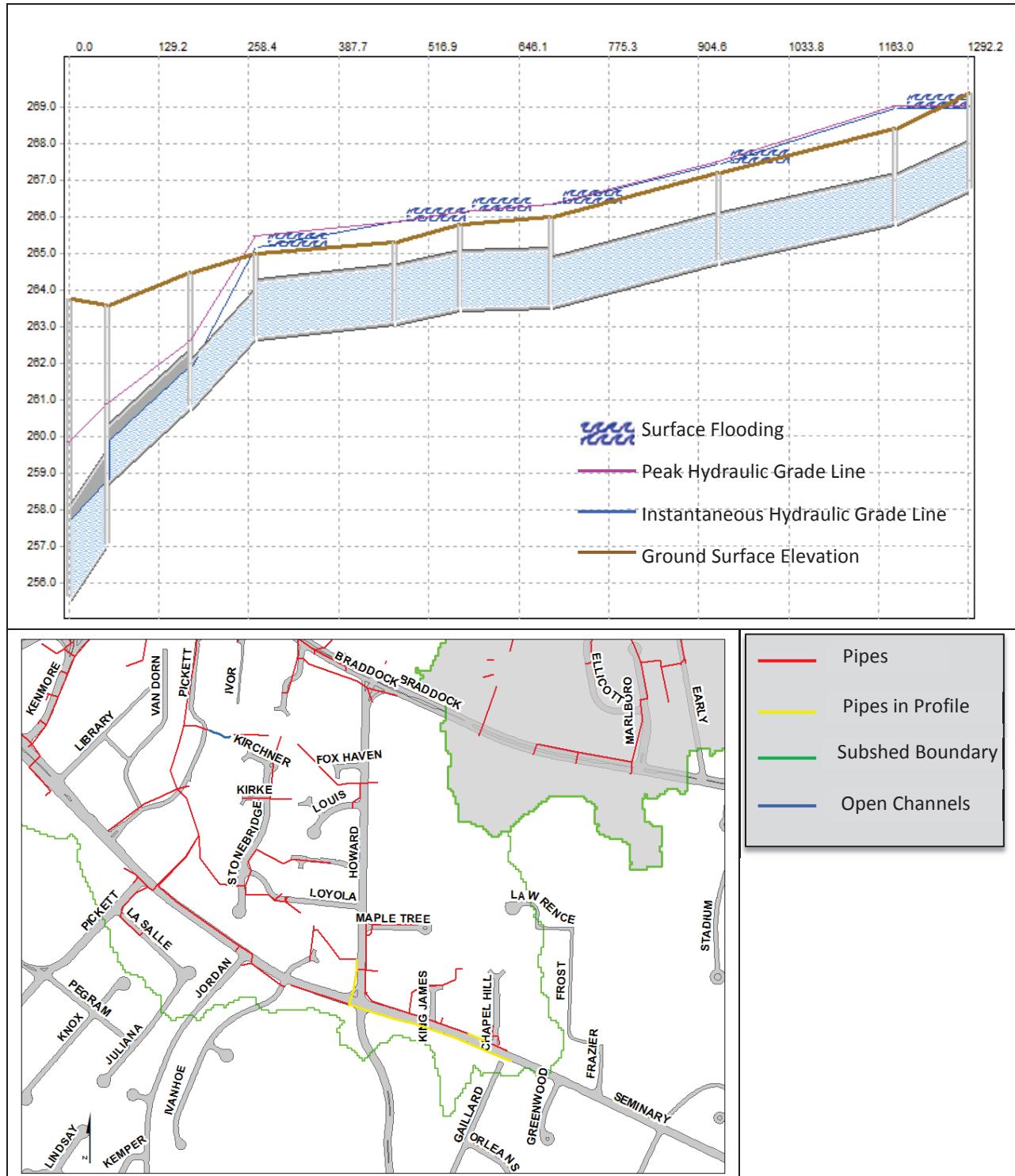


FIGURE 6

Profile 6 from 003730IN to 001195SMH (Existing IDF, Existing Boundary Condition)

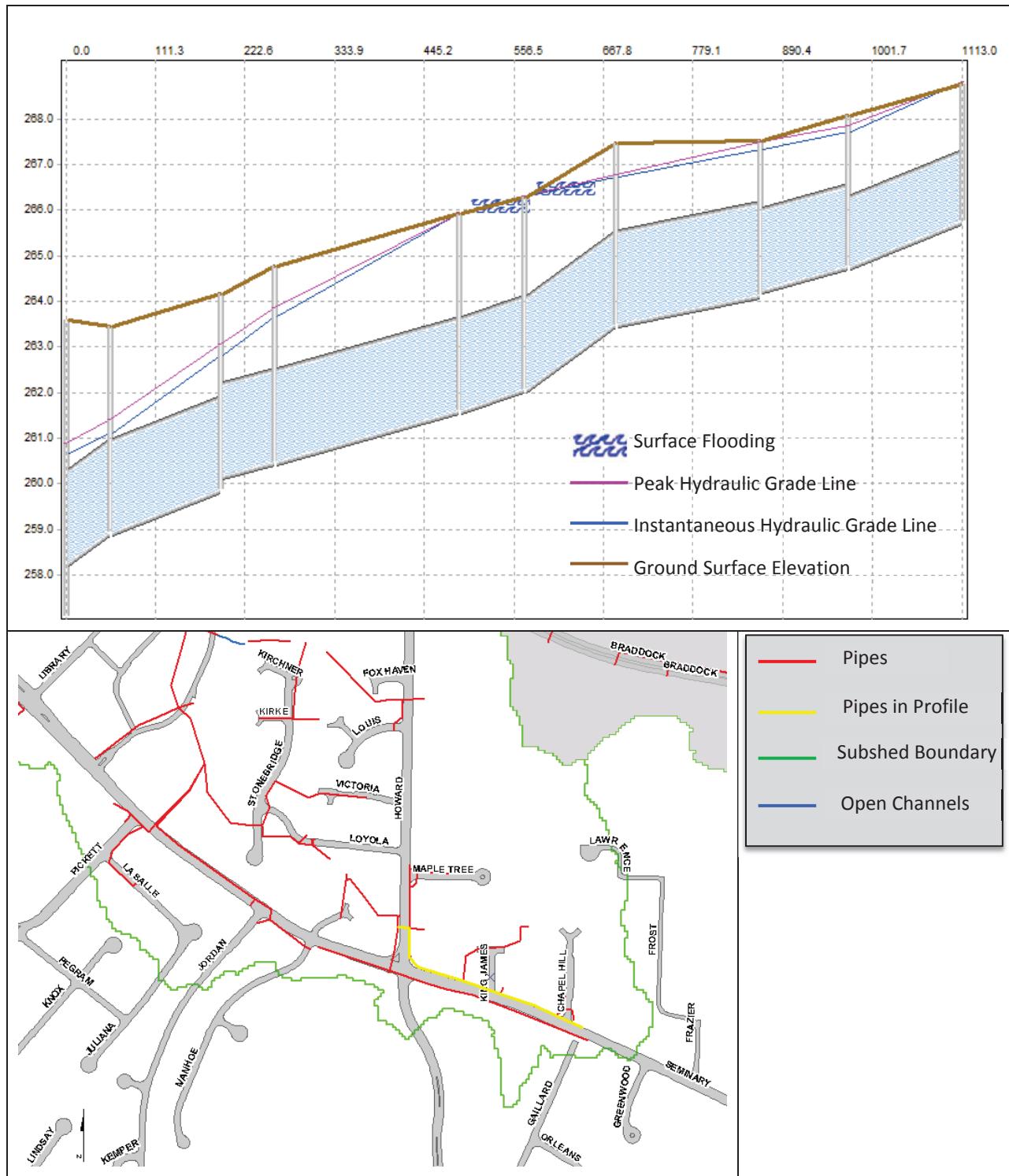


FIGURE 7

Profile 7 from 004637IN to 004651IN (Existing IDF, Existing Boundary Condition)

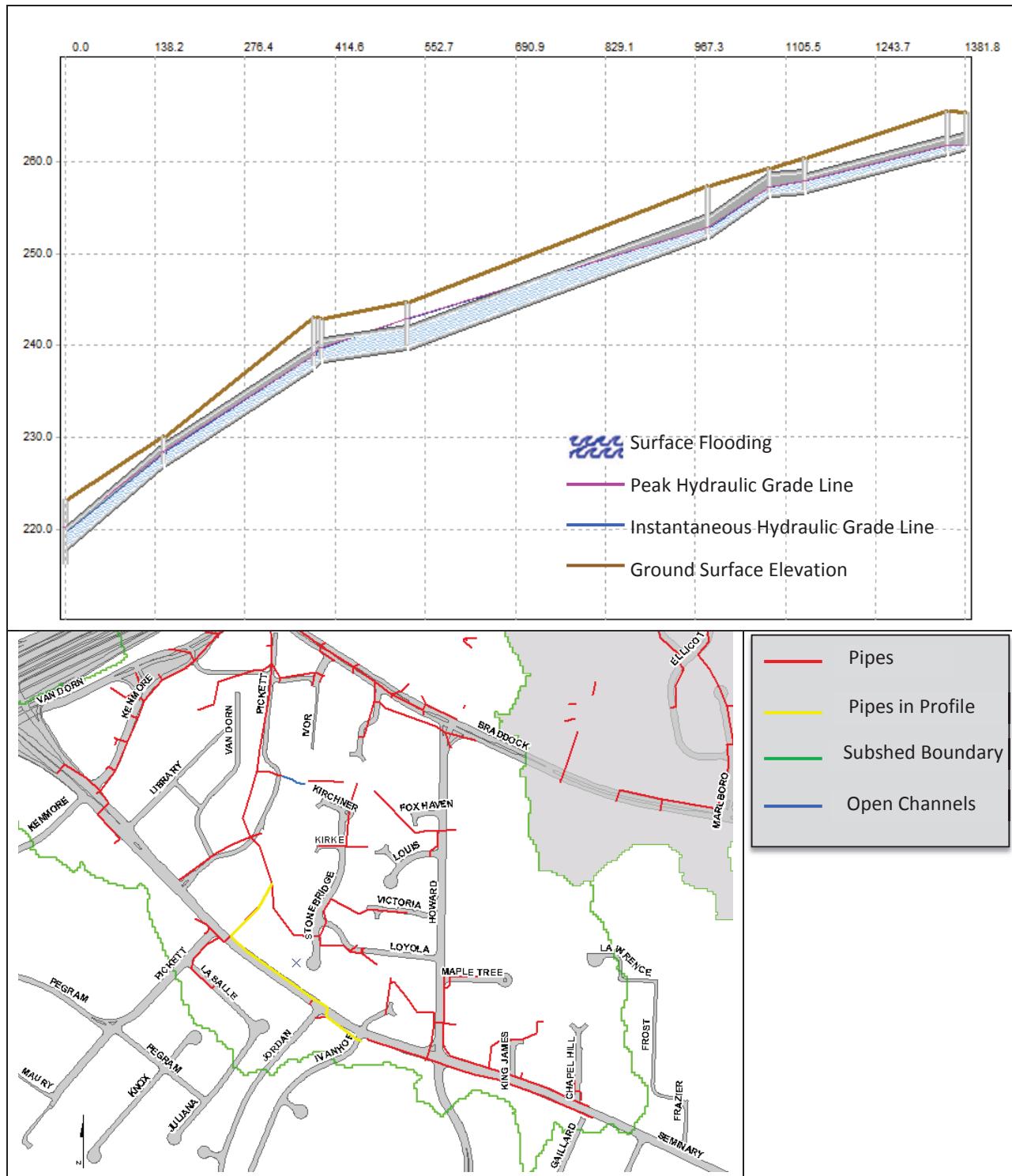


FIGURE 8

Profile 8 from 004651IN to 001419SMH (Existing IDF, Existing Boundary Condition)

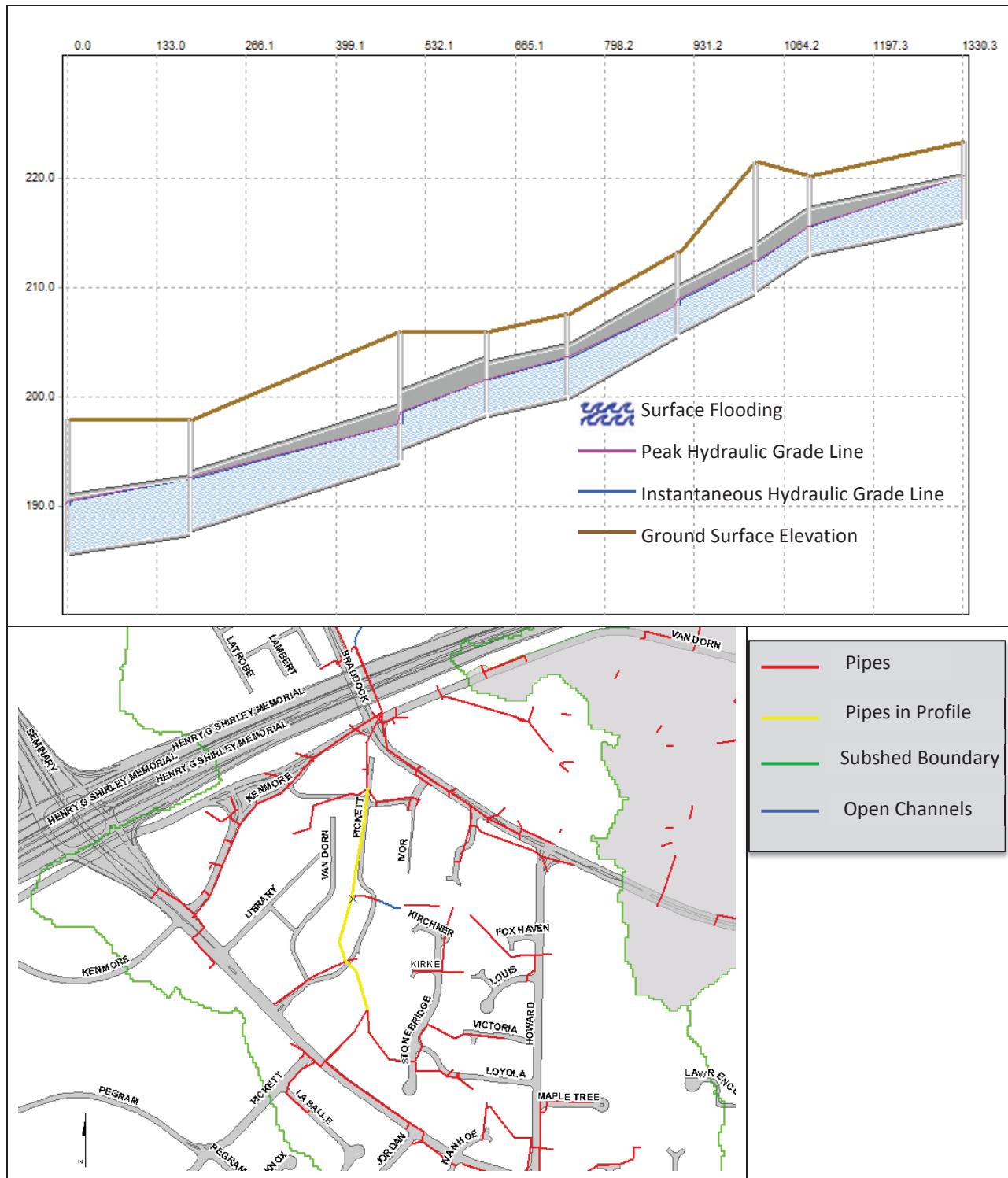


FIGURE 9

Profile 9 from 004109IN to 001410SMH (Existing IDF, Existing Boundary Condition)

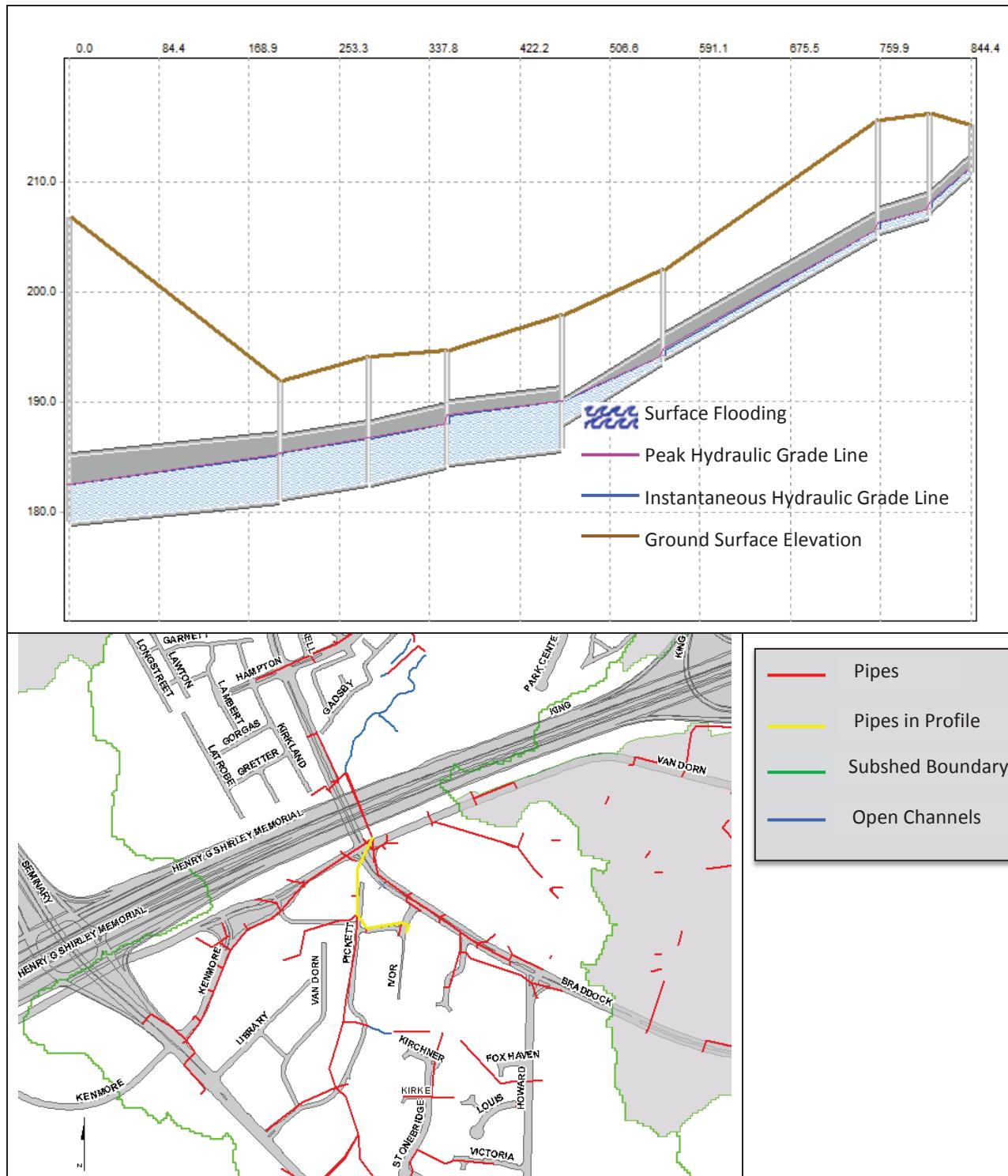


FIGURE 10

Profile 10 from 000422IN to 001410SMH (Existing IDF, Existing Boundary Condition)

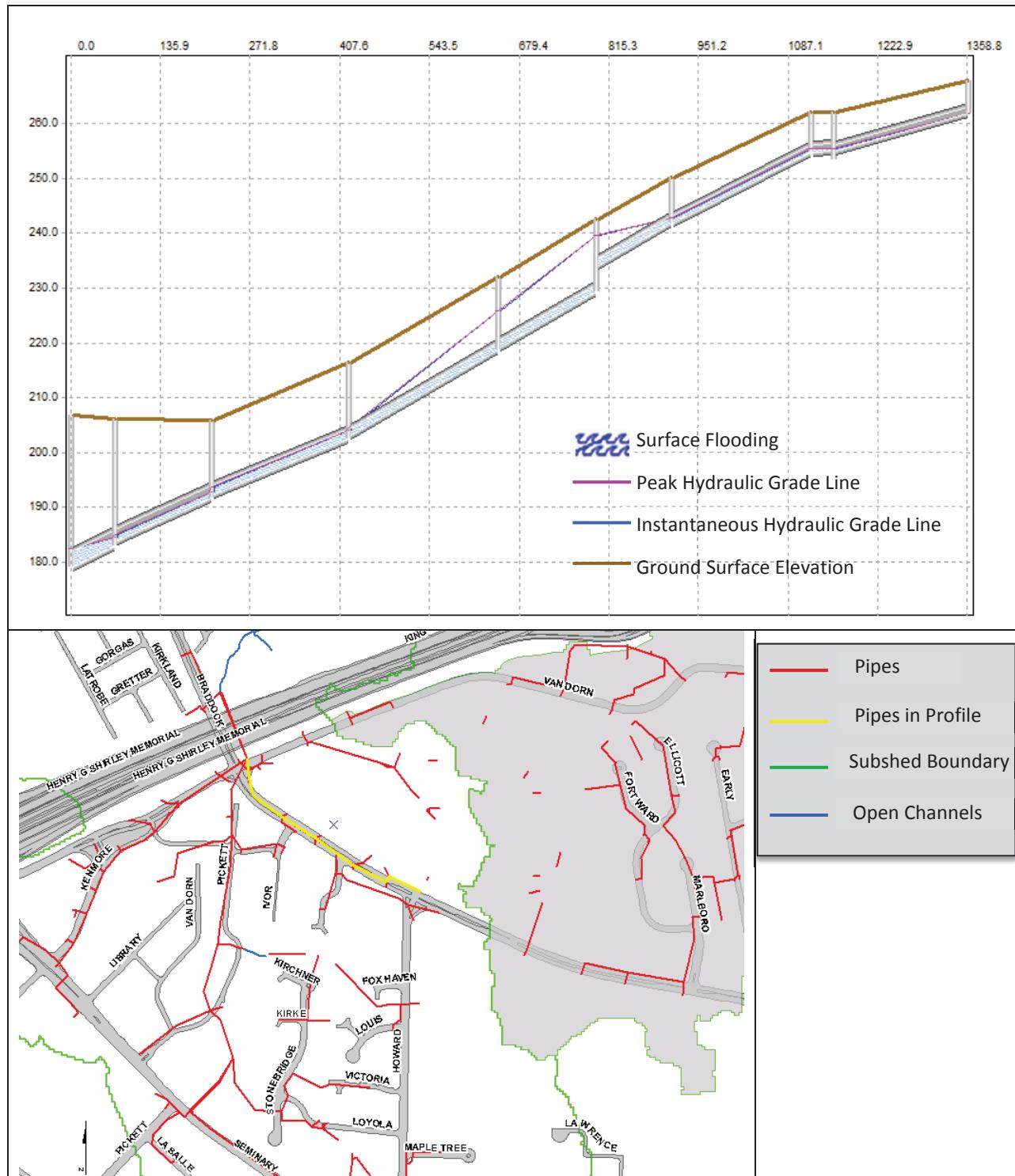


FIGURE 11

Profile 11 from 005029IN to 001410SMH (Existing IDF, Existing Boundary Condition)

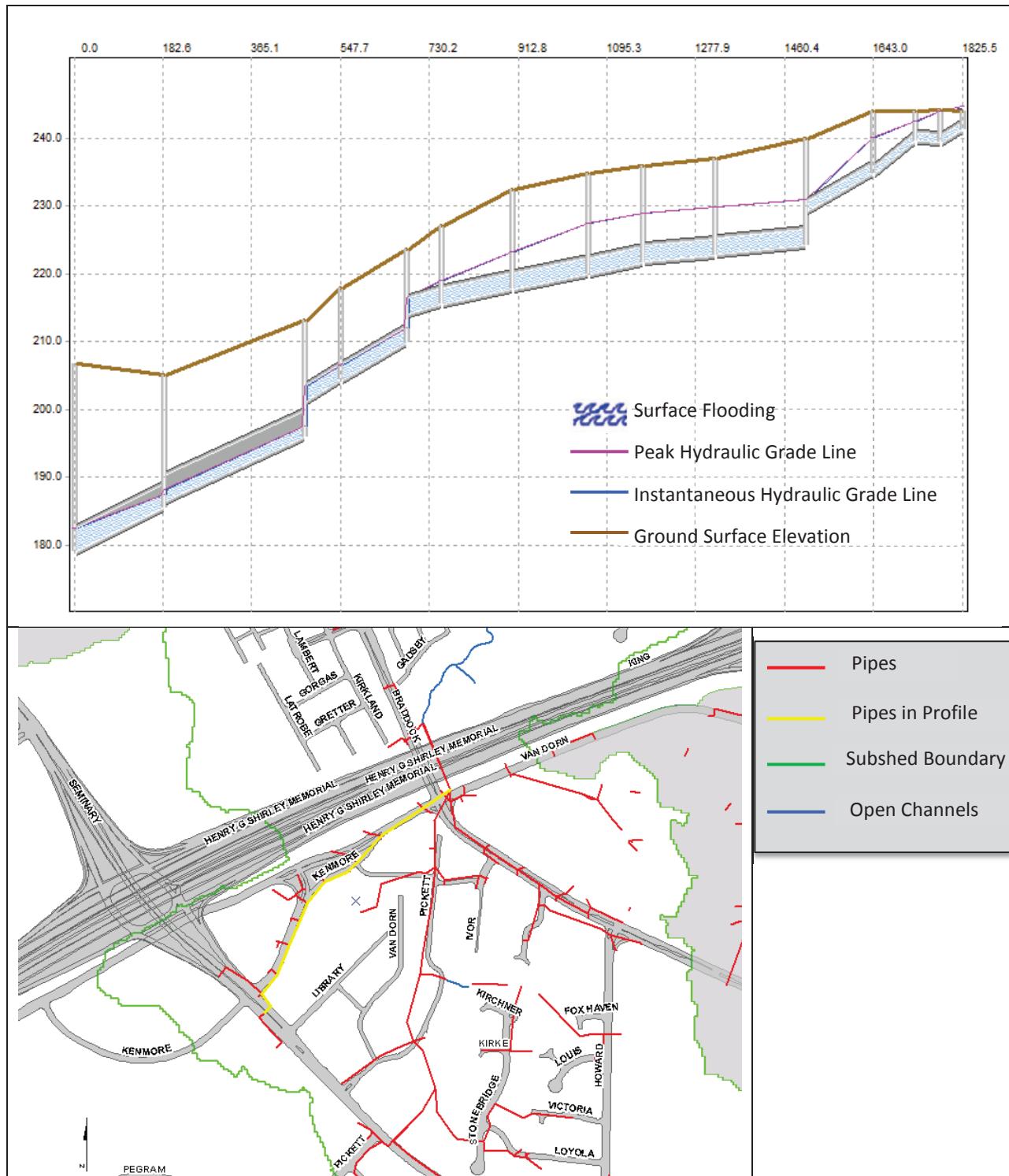


FIGURE 12

Profile 12 from 000062ND to 000181ND (Existing IDF, Existing Boundary Condition)

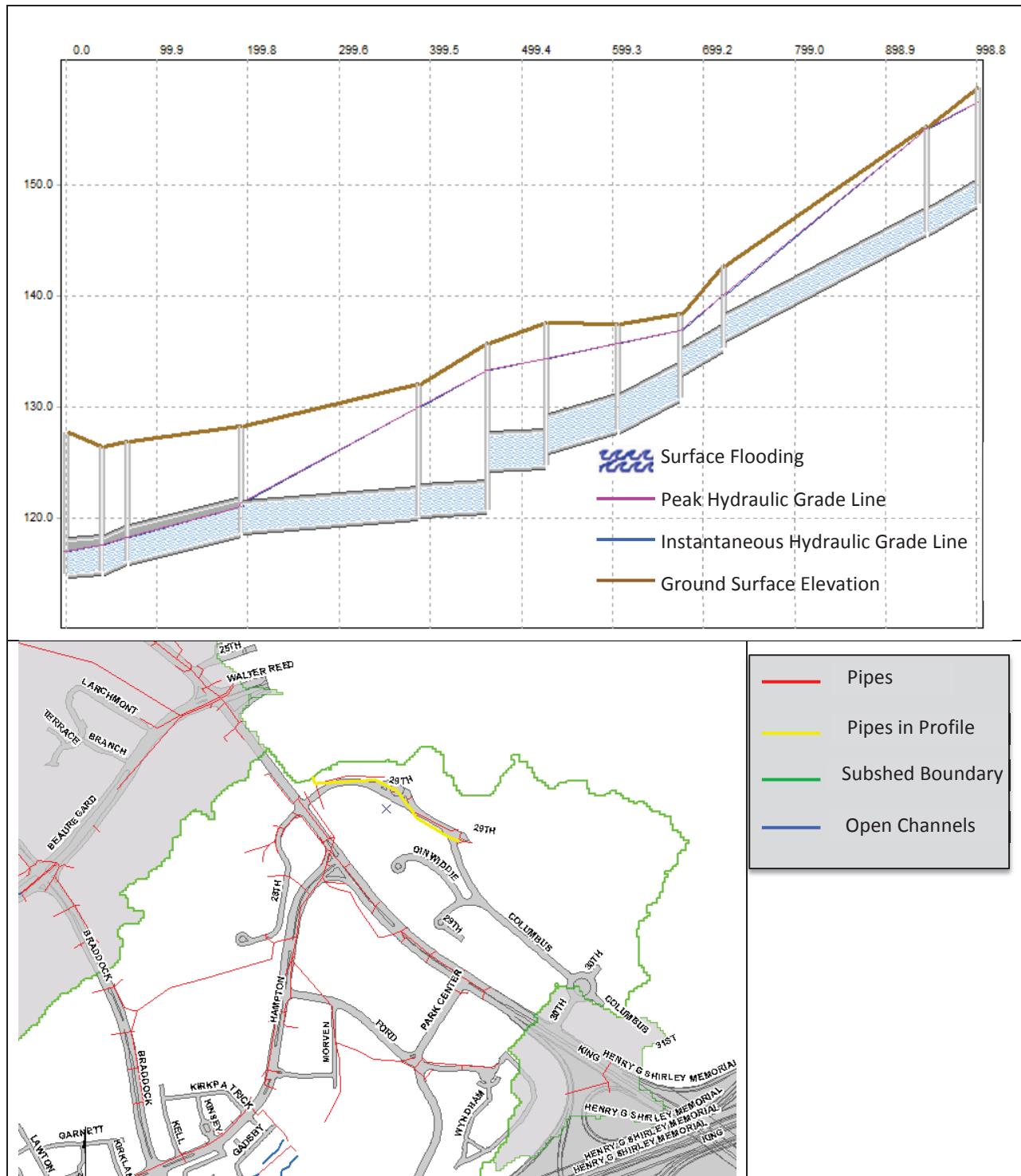
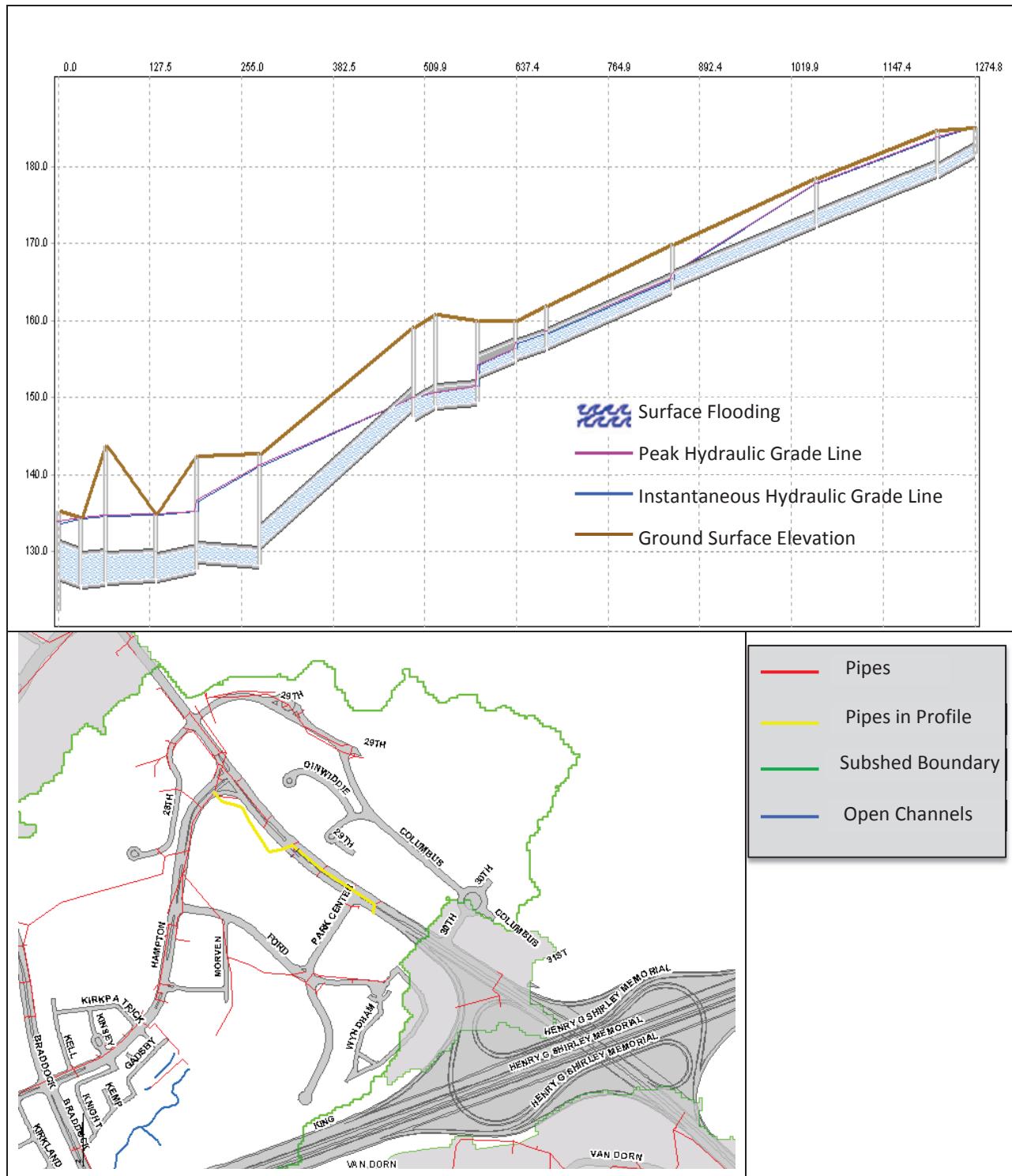


FIGURE 13

Profile 13 from 000148IN to 000326SMH (Existing IDF, Existing Boundary Condition)



## FIGURE 14

## Profile 14 from 0001077IN to 002878ND (Existing IDF, Existing Boundary Condition)

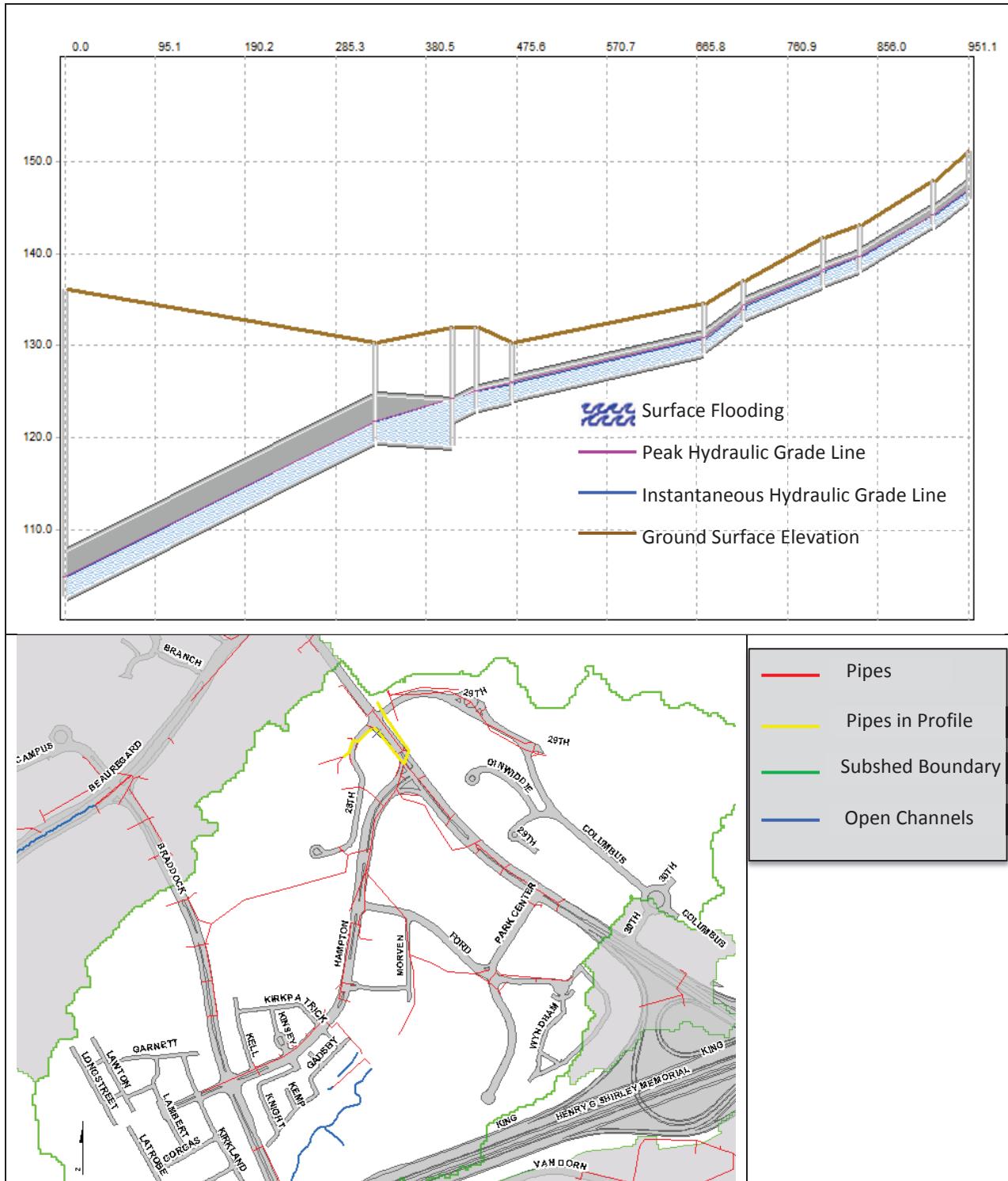


FIGURE 15

Profile 15 from 001015IN to 000176ND (Existing IDF, Existing Boundary Condition)

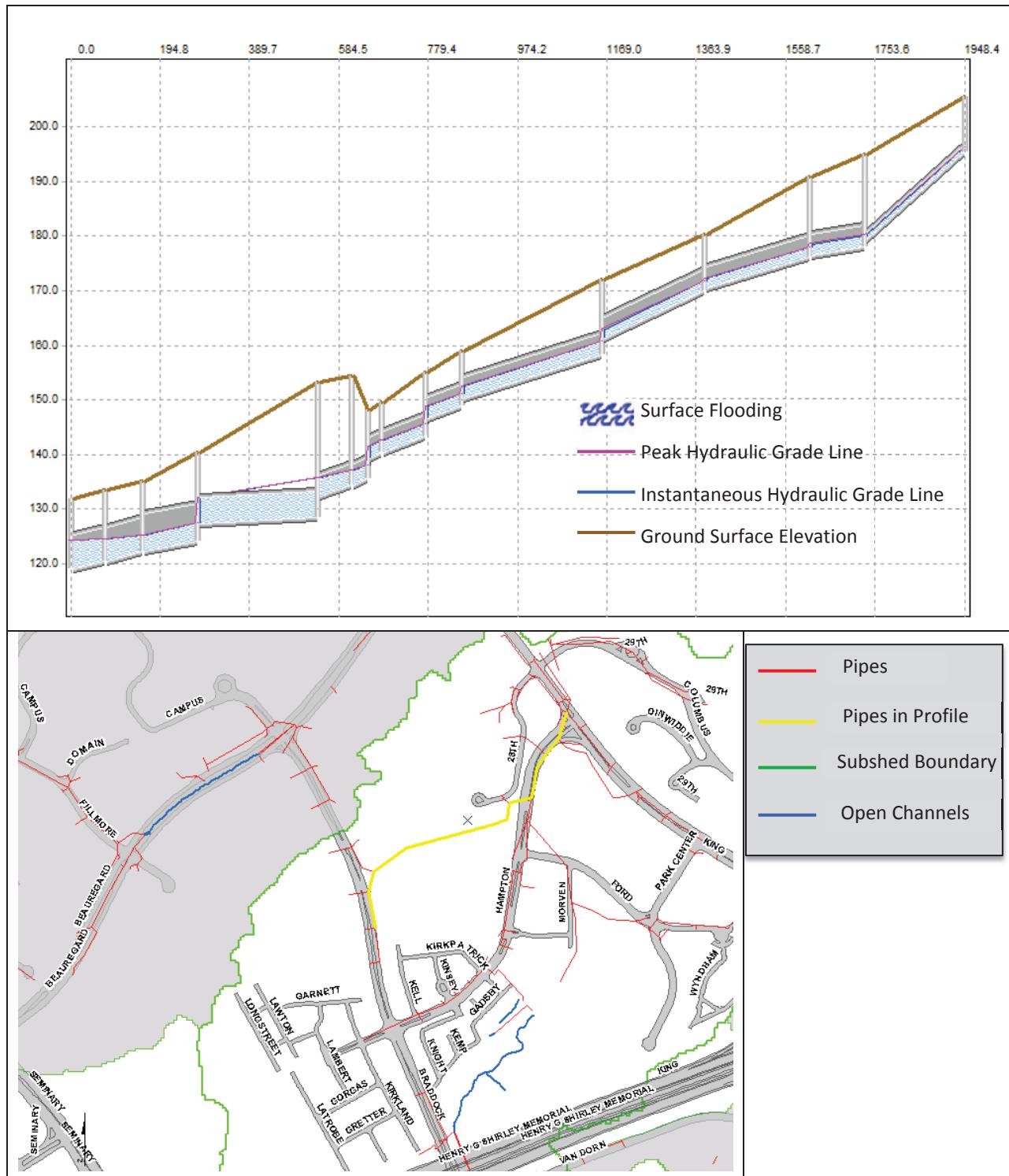
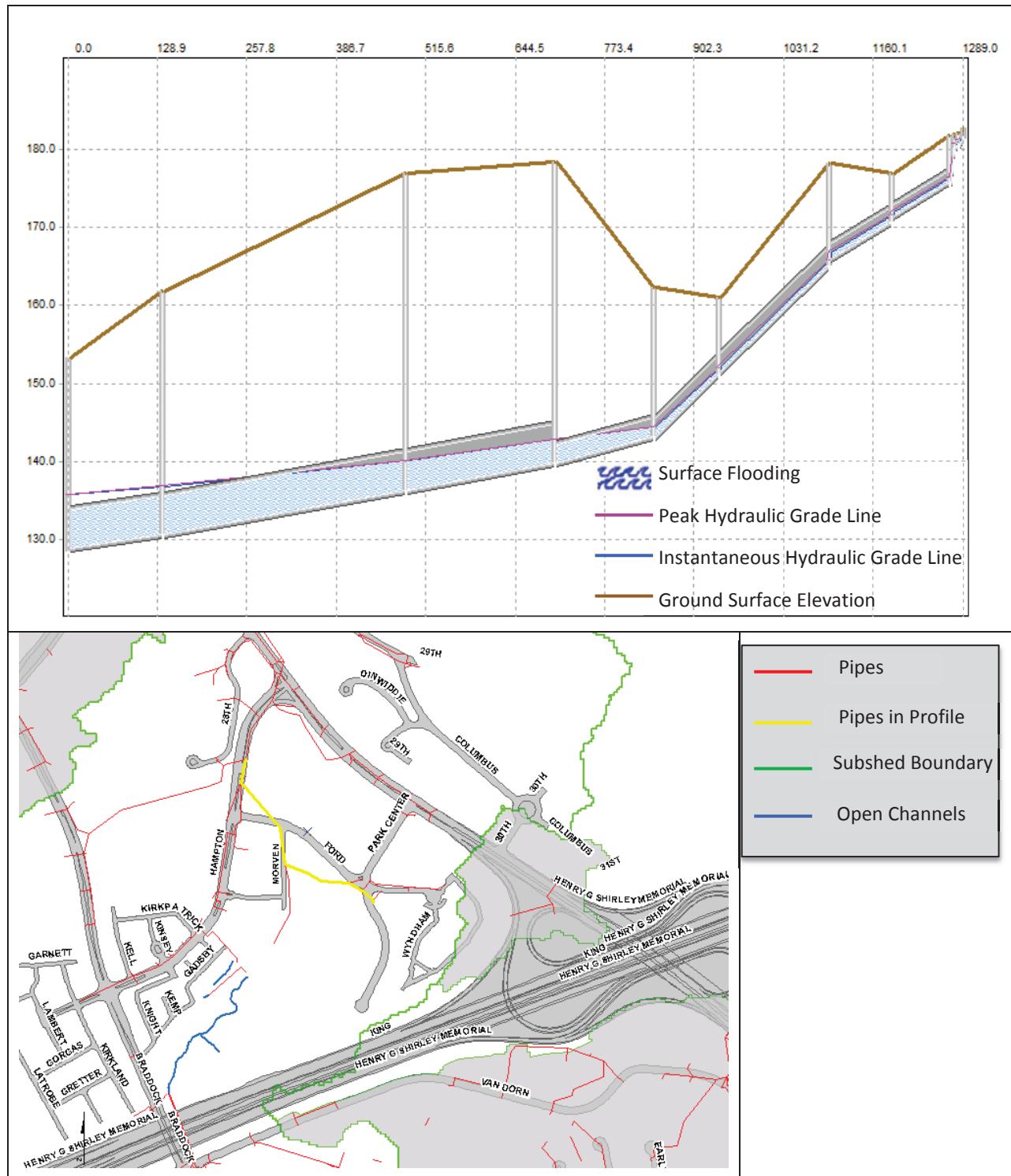


FIGURE 16

Profile 16 from 000238IN to 000364SMH (Existing IDF, Existing Boundary Condition)



## FIGURE 17

Profile 17 from 000359SMH to 000003PD (Existing IDF, Existing Boundary Condition)

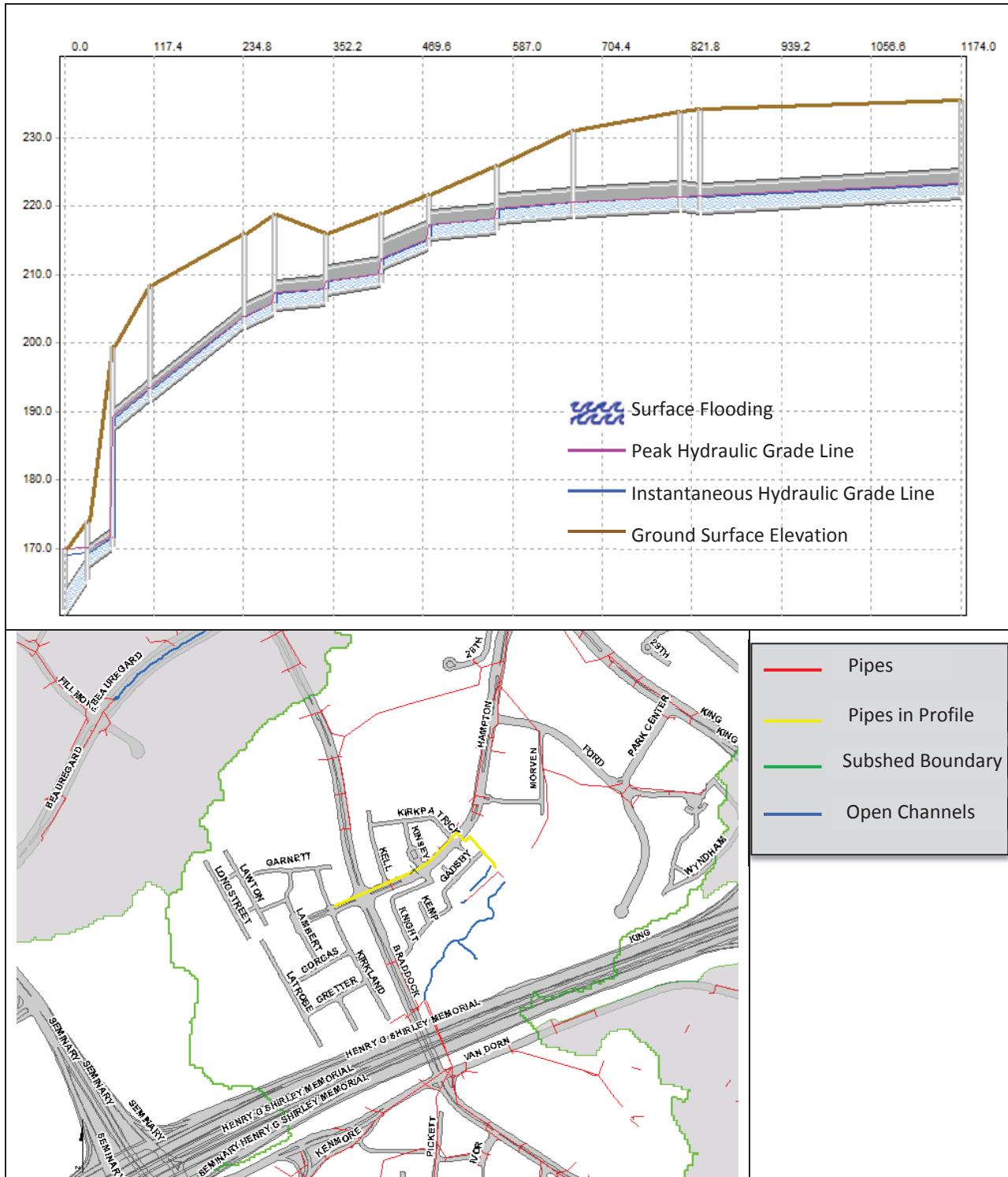


FIGURE 18

Profile 18 from 000365SMH to 000186ND (Existing IDF, Existing Boundary Condition)

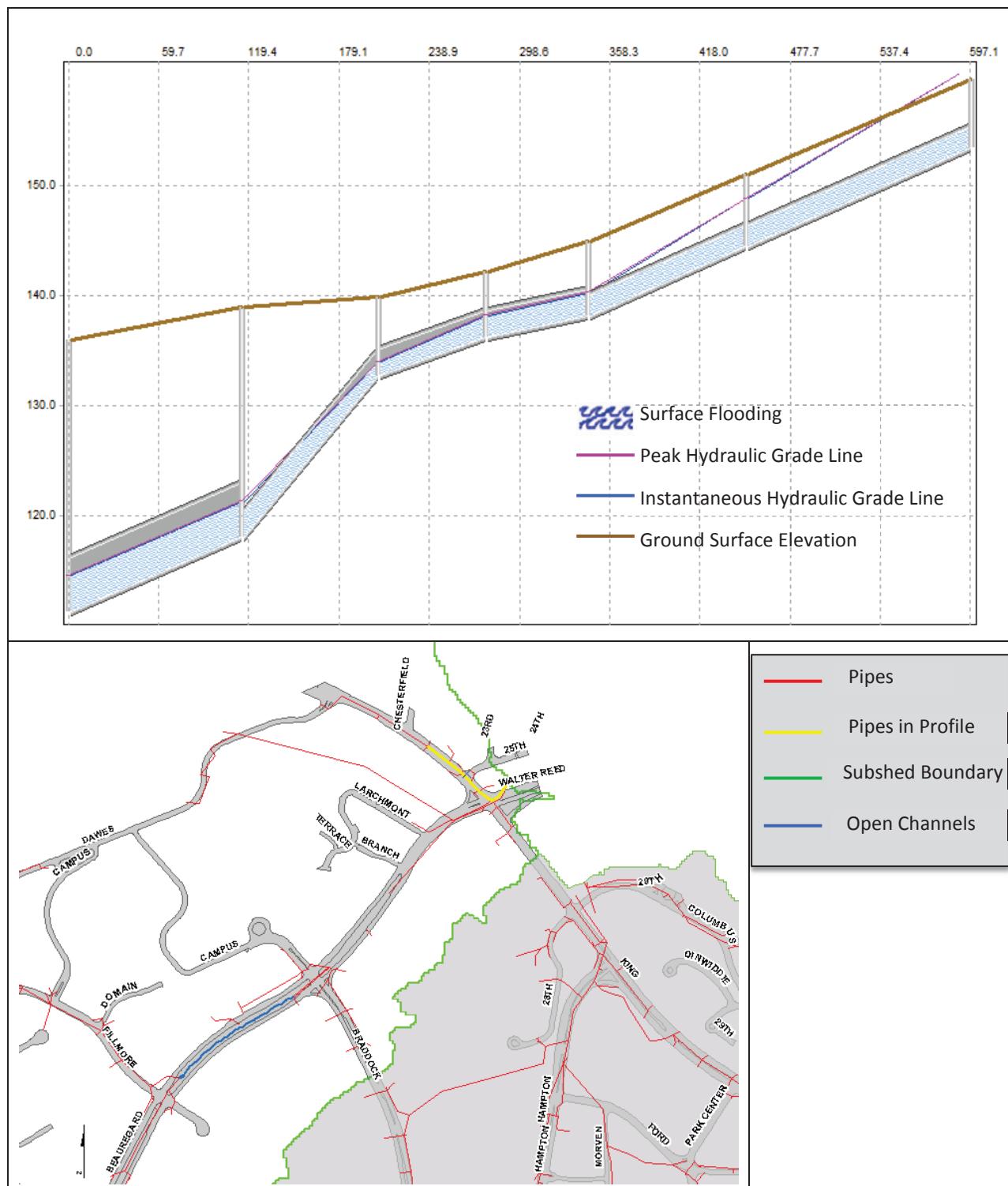


FIGURE 19

Profile 19 from 000394SMH to 000374SMH (Existing IDF, Existing Boundary Condition)

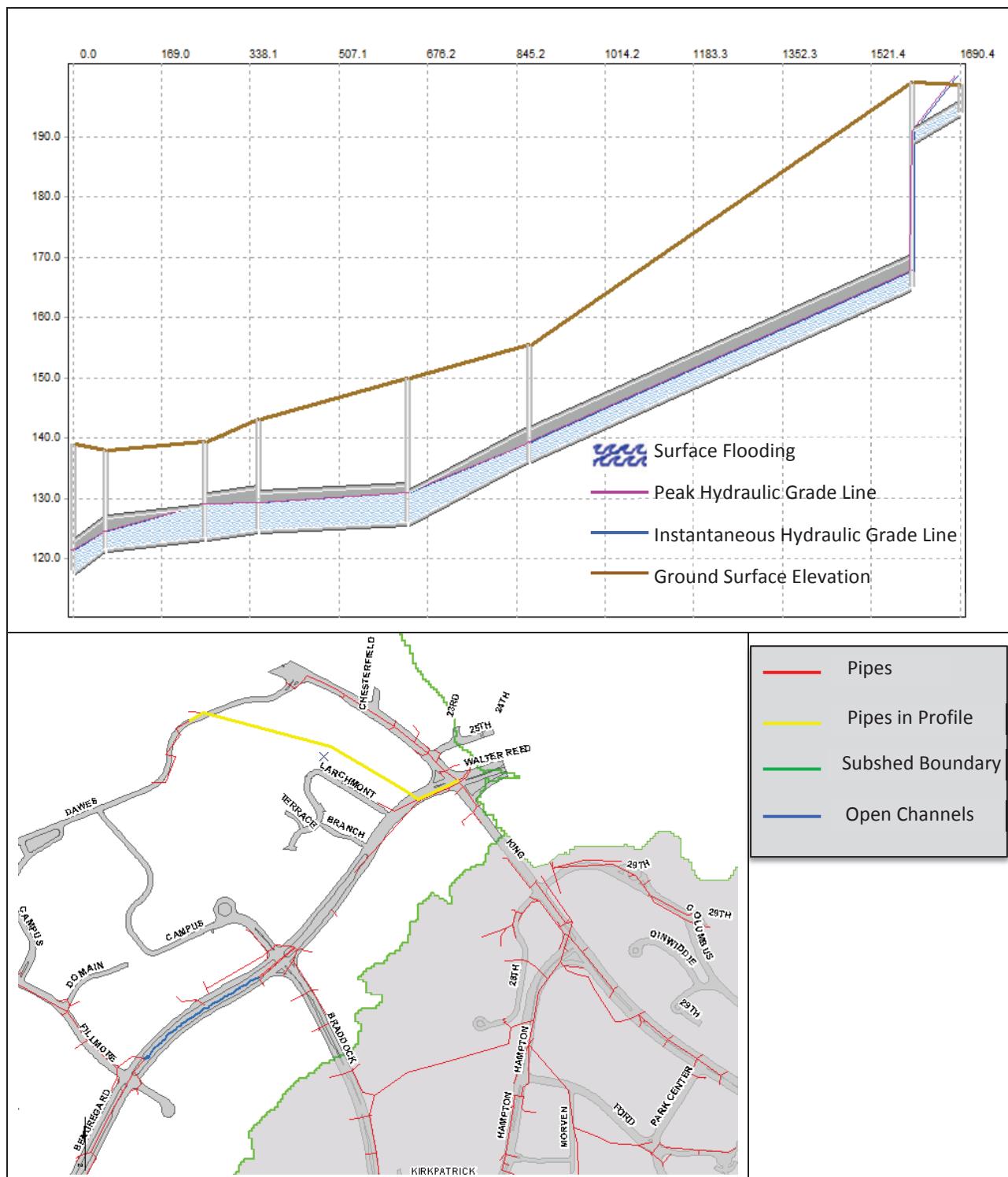


FIGURE 20

Profile 20 from Node285 to 000187ND (Existing IDF, Existing Boundary Condition)

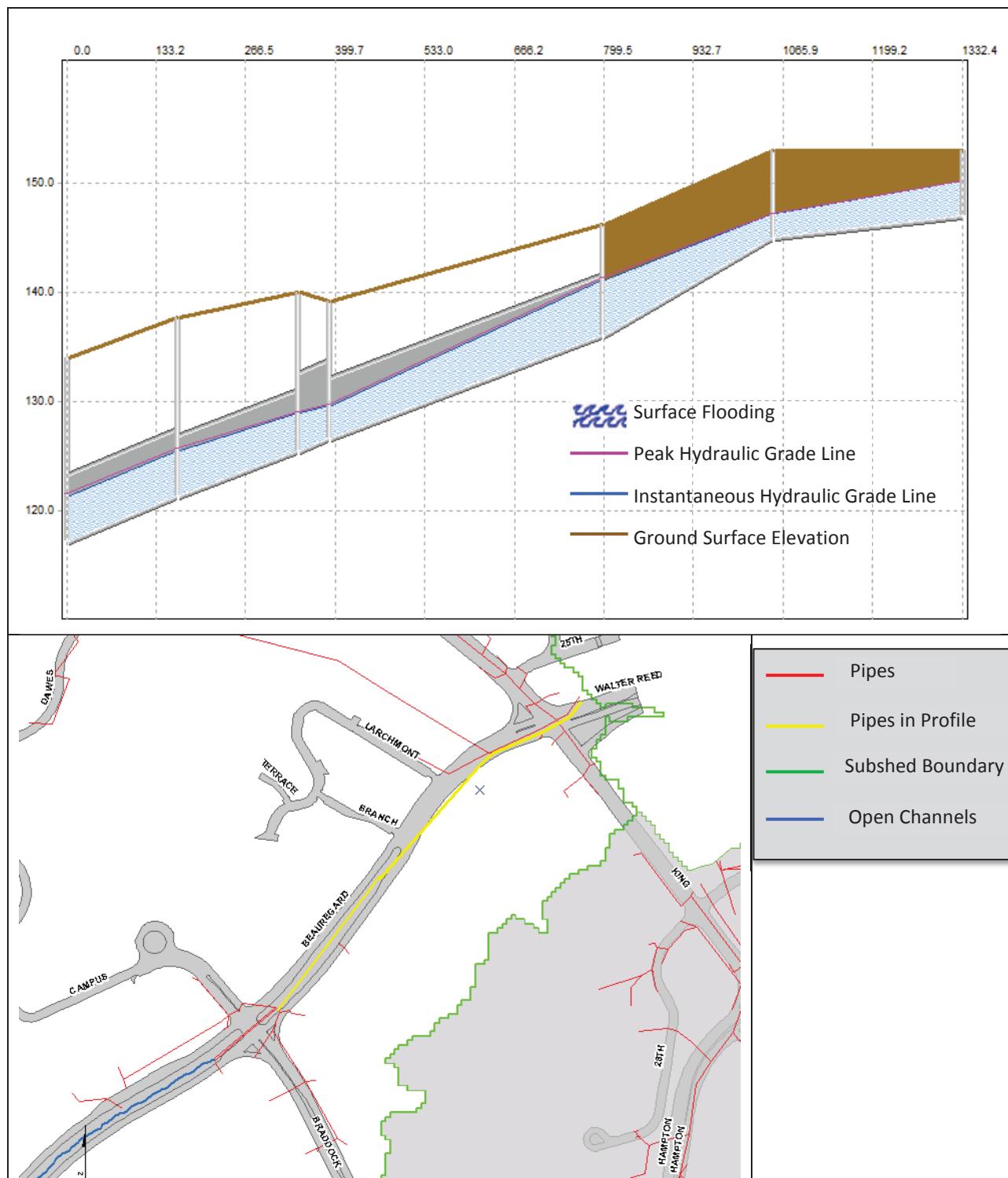


FIGURE 21

Profile 21 from 000319SMH to 000087IO (Existing IDF, Existing Boundary Condition)

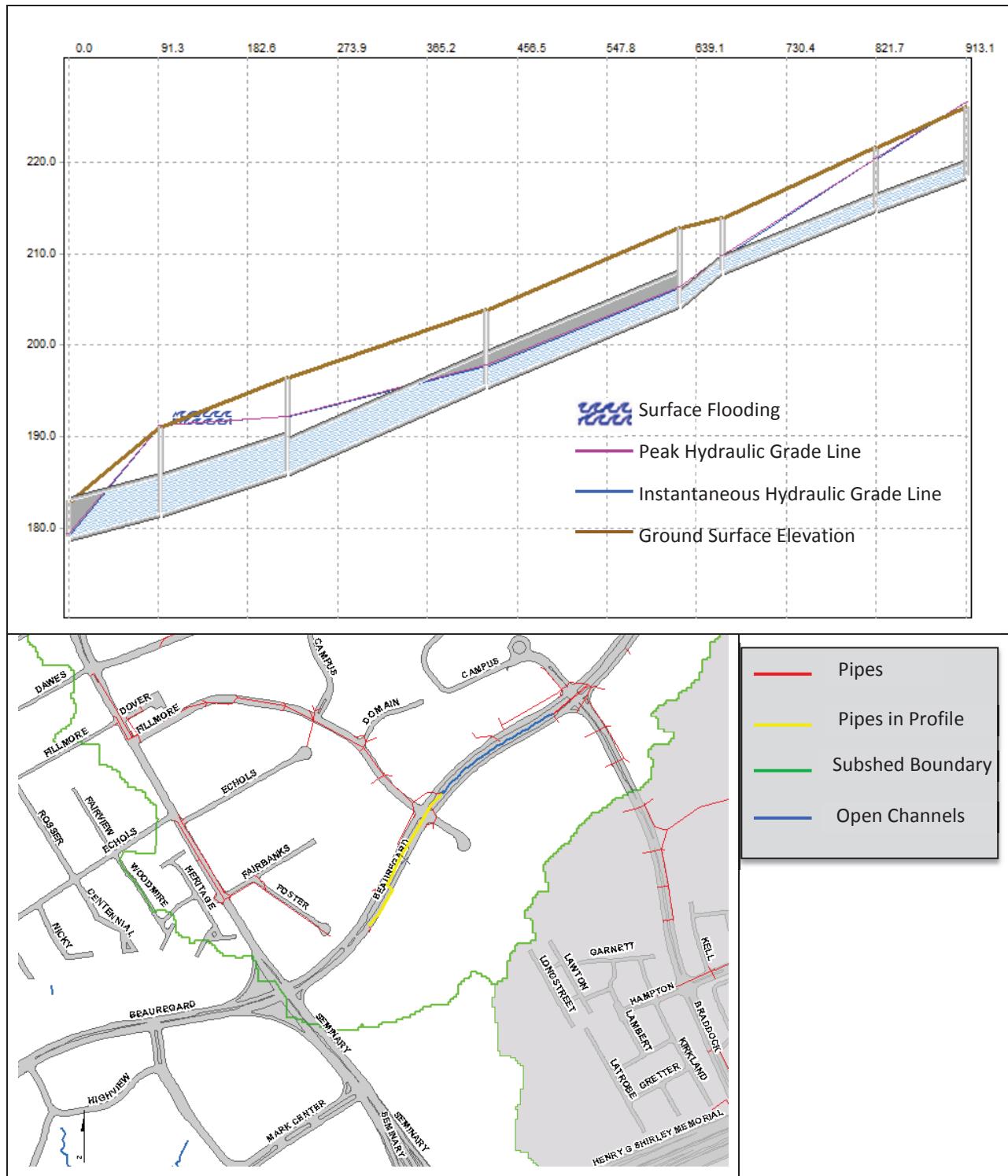
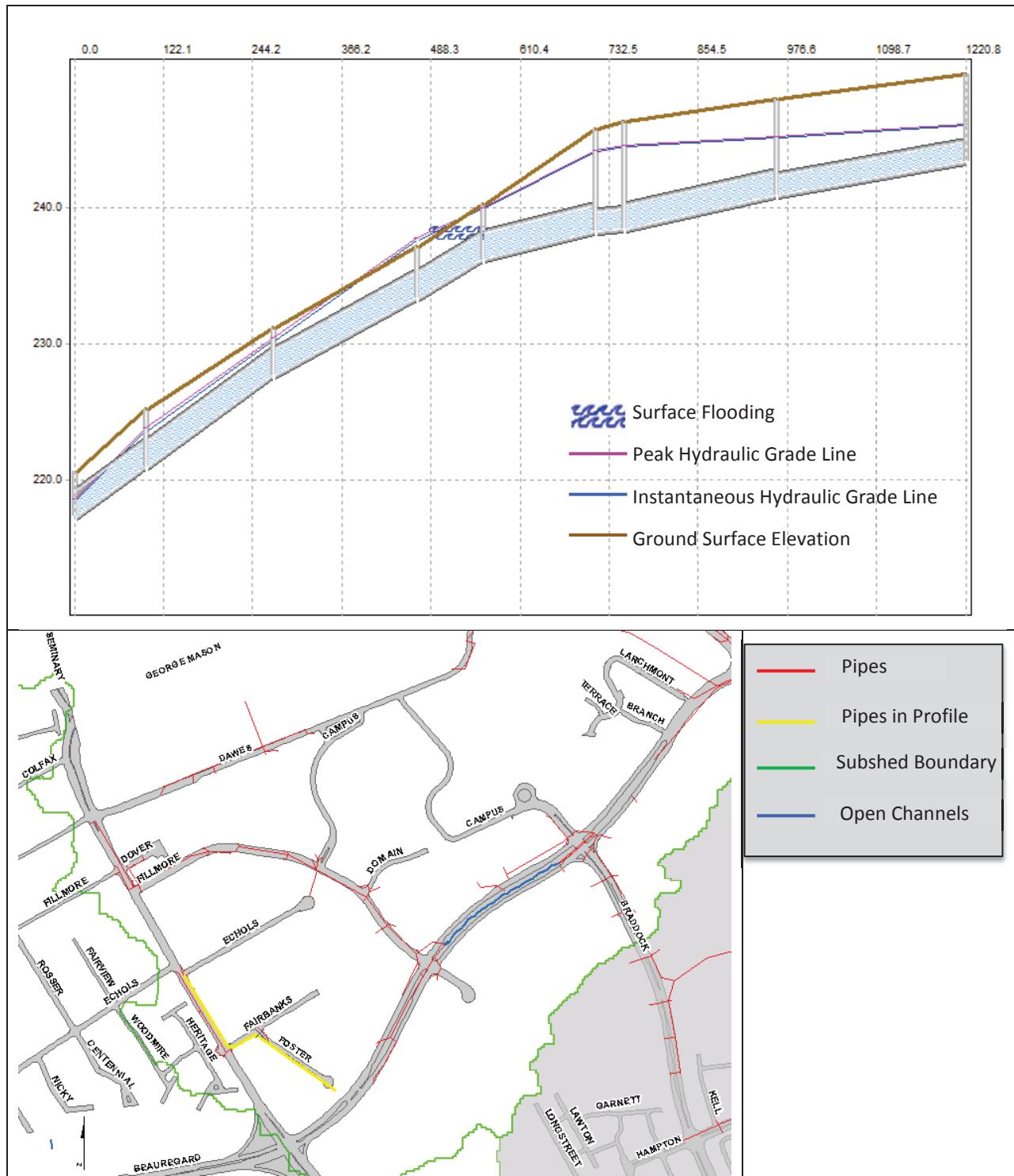


FIGURE 22

Profile 22 from 000562SMH to 000115IO (Existing IDF, Existing Boundary Condition)



## FIGURE 23

Profile 23 from 000577SMH to 000084IO (Existing IDF, Existing Boundary Condition)

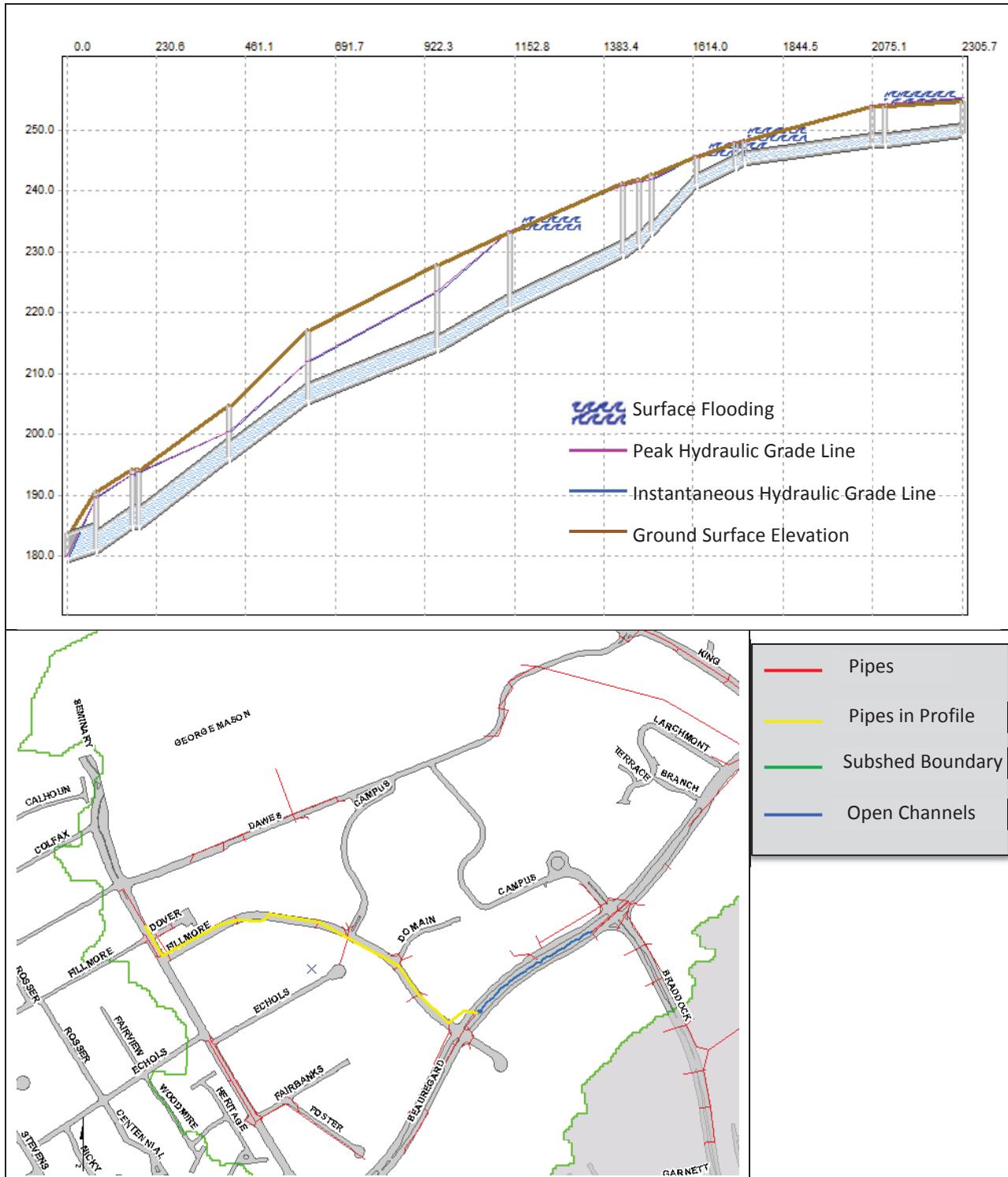


FIGURE 24

Profile 24 from 000002CD to 002023ND (Existing IDF, Existing Boundary Condition)

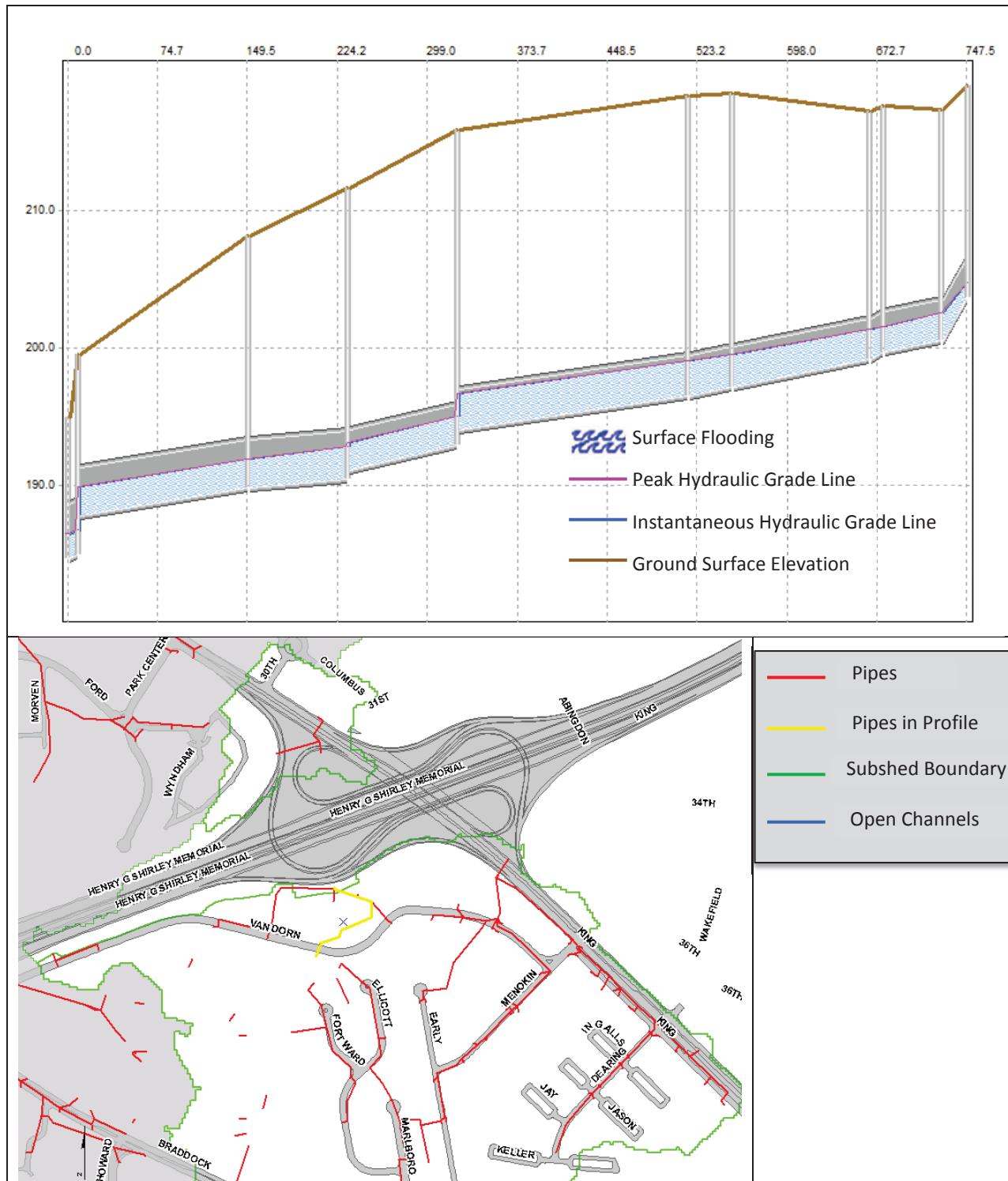


FIGURE 25

Profile 25 from 000117SMH to 000185SMH (Existing IDF, Existing Boundary Condition)

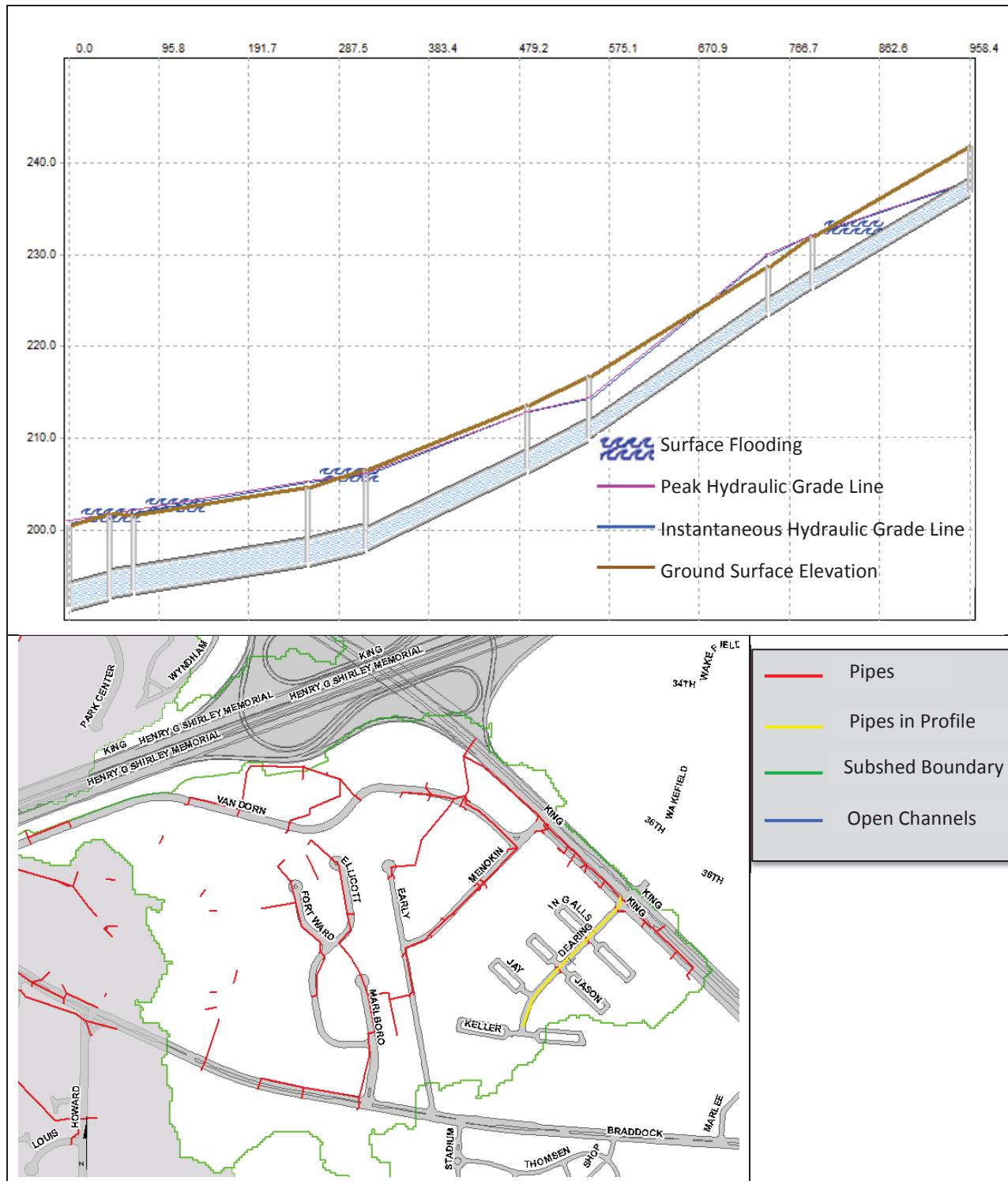


FIGURE 26

Profile 26 from 003760IN to 000023IO (Existing IDF, Existing Boundary Condition)

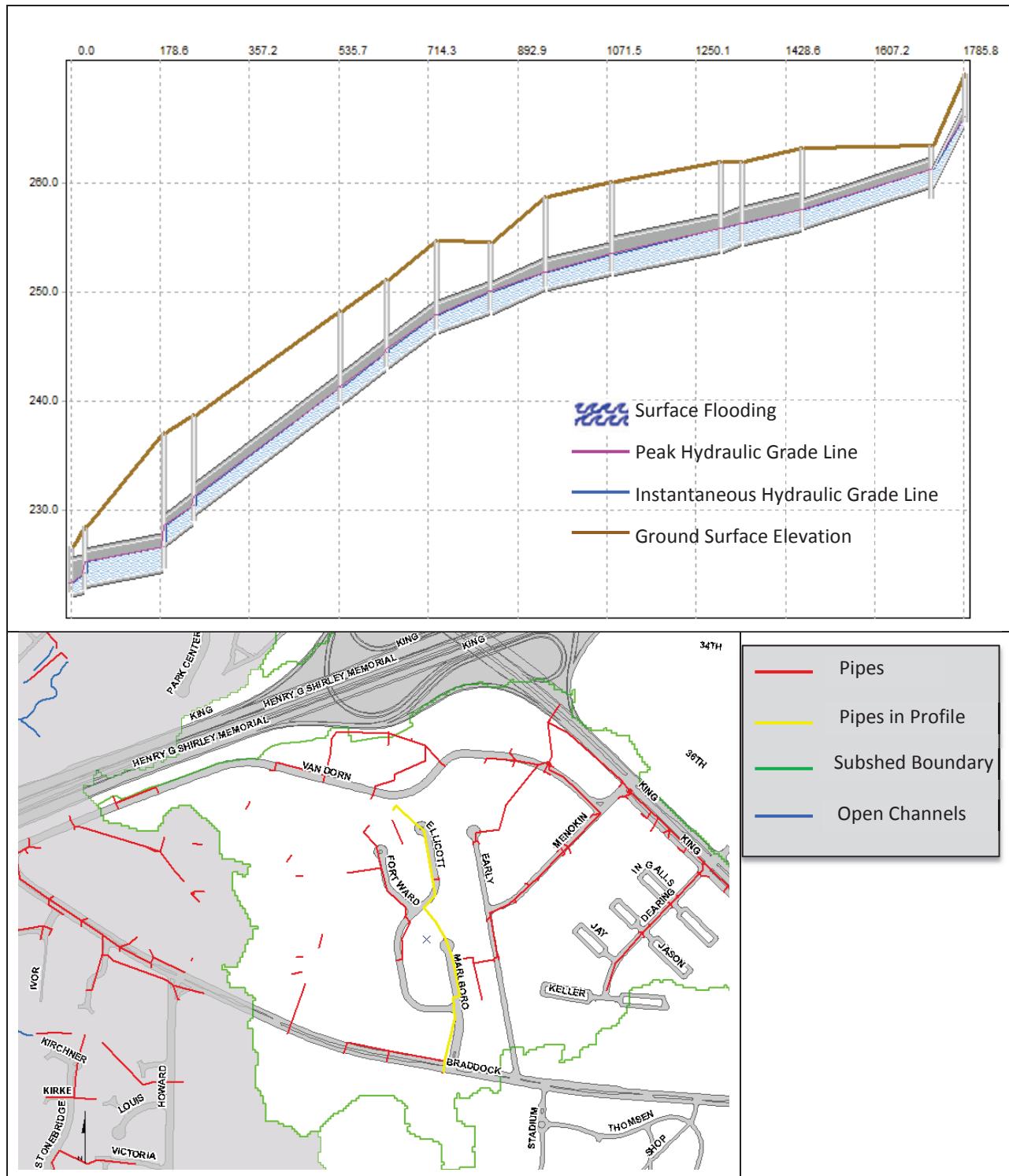
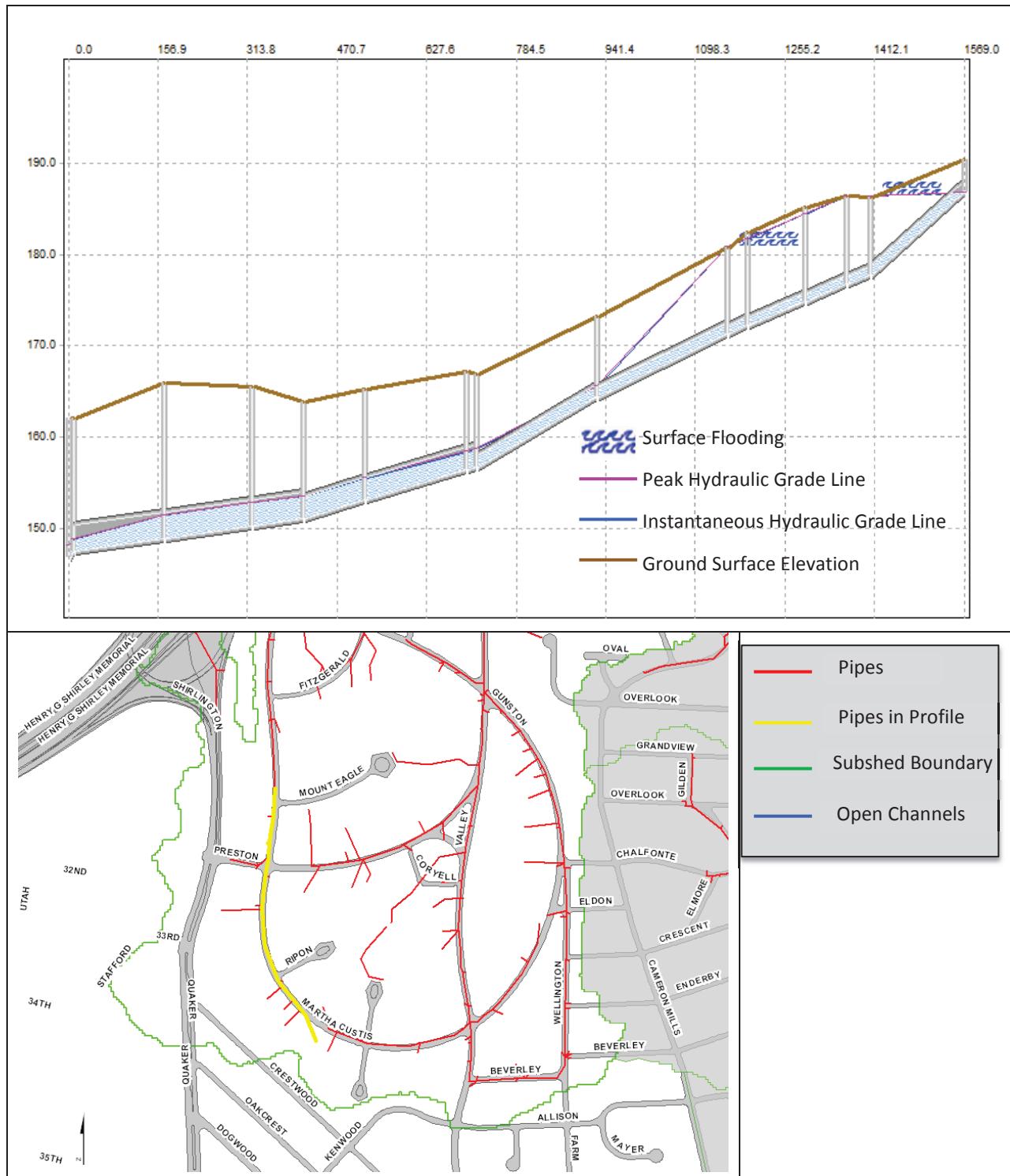


FIGURE 27

Profile 27 from 002869SMH to 001398ND (Existing IDF, Existing Boundary Condition)



## FIGURE 28

Profile 28 from 001398ND to 002283SMH (Existing IDF, Existing Boundary Condition)

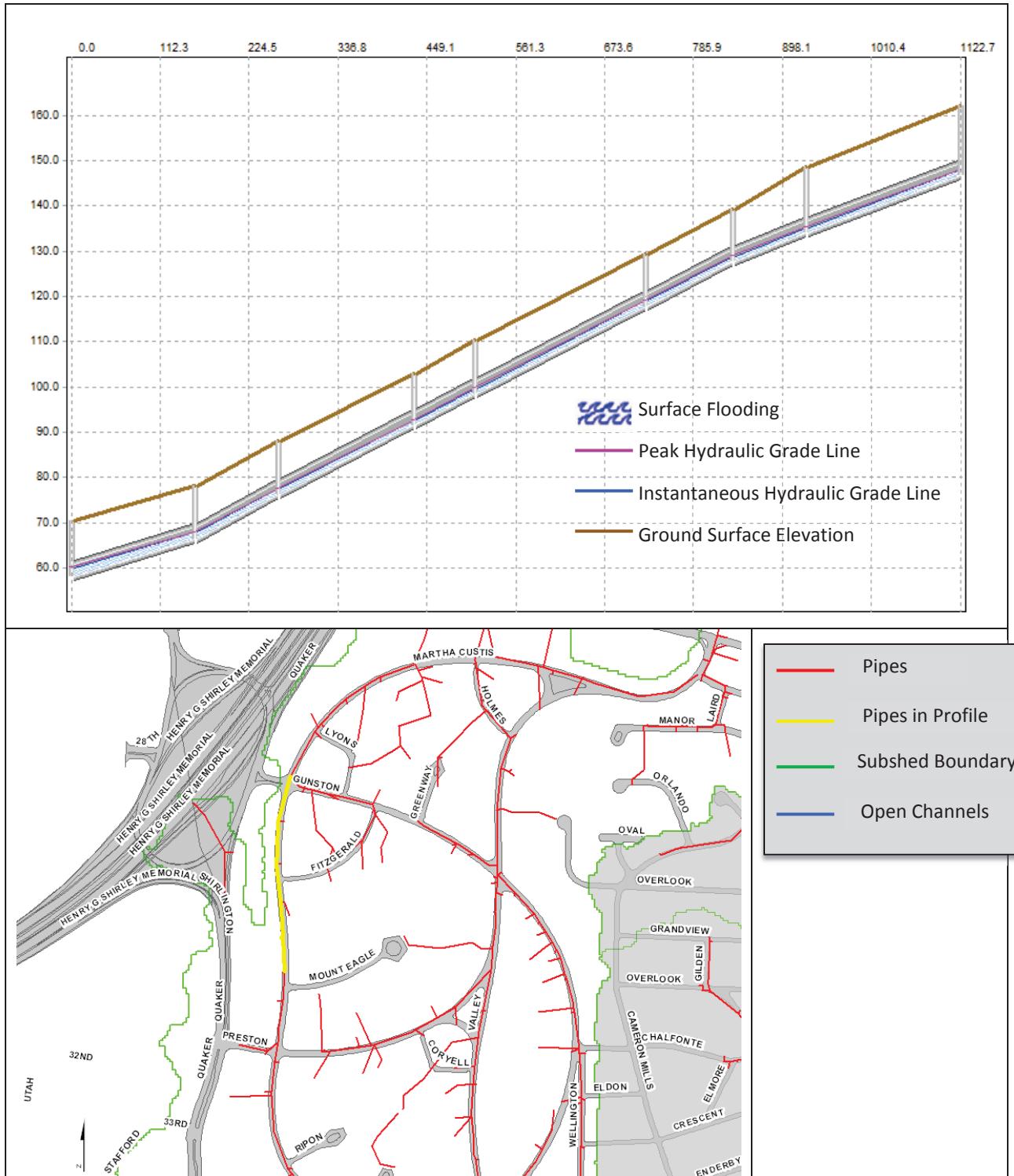


FIGURE 29

Profile 29 from 002283SMH to 000465IO (Existing IDF, Existing Boundary Condition)

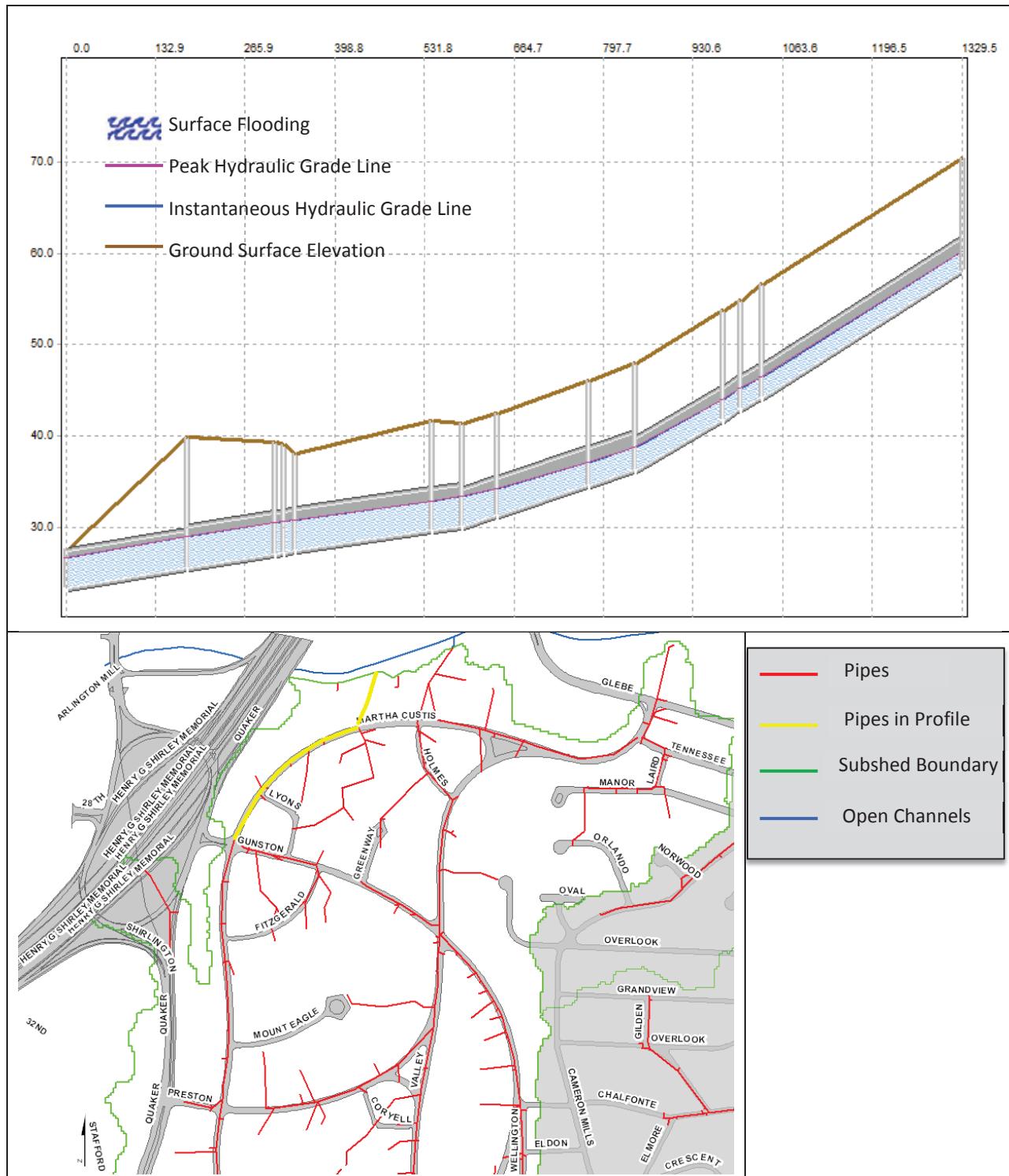


FIGURE 30

Profile 30 from 002144SMH to 001298ND (Existing IDF, Existing Boundary Condition)

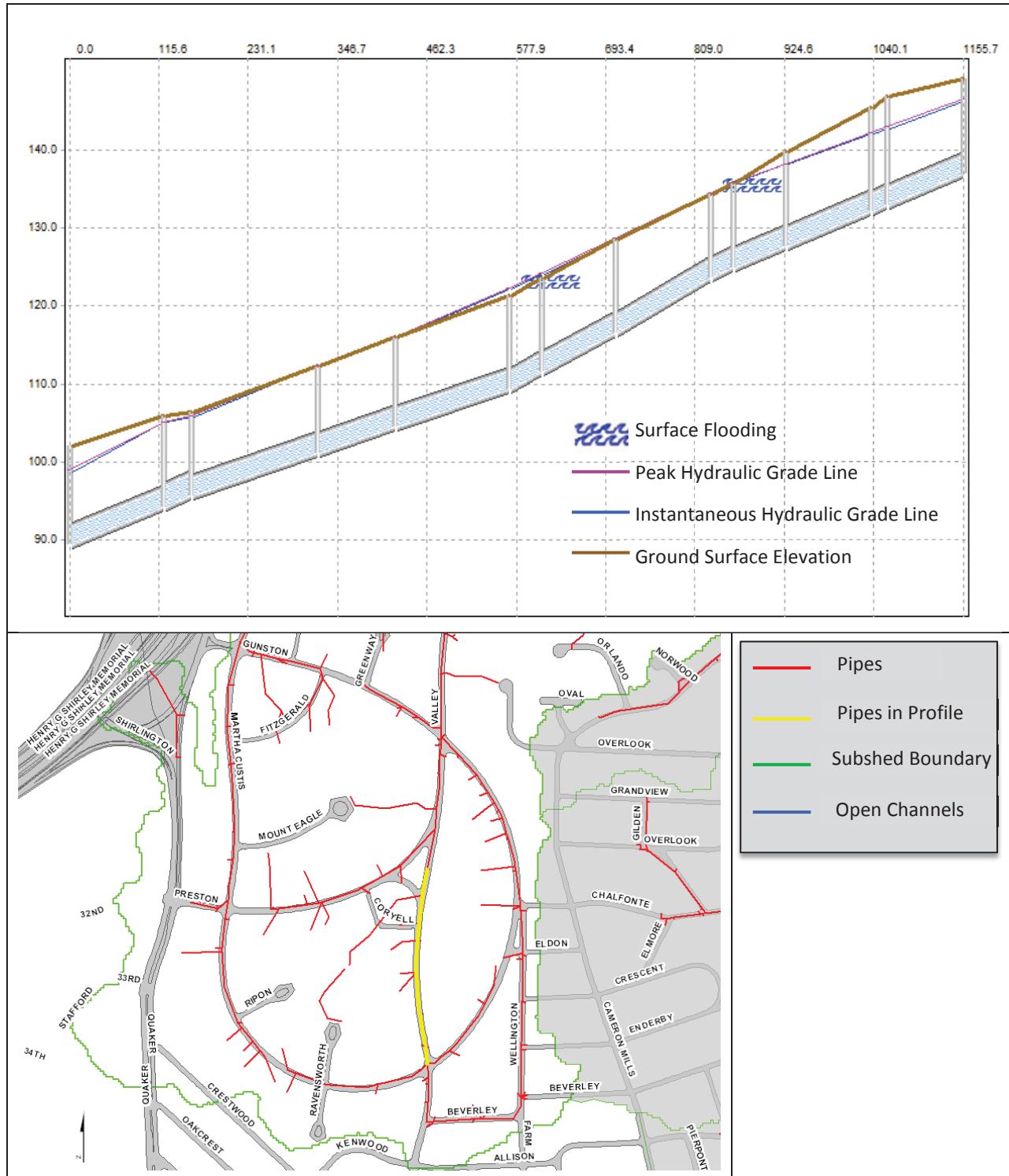


FIGURE 31

Profile 31 from 001298ND to 002816SMH (Existing IDF, Existing Boundary Condition)

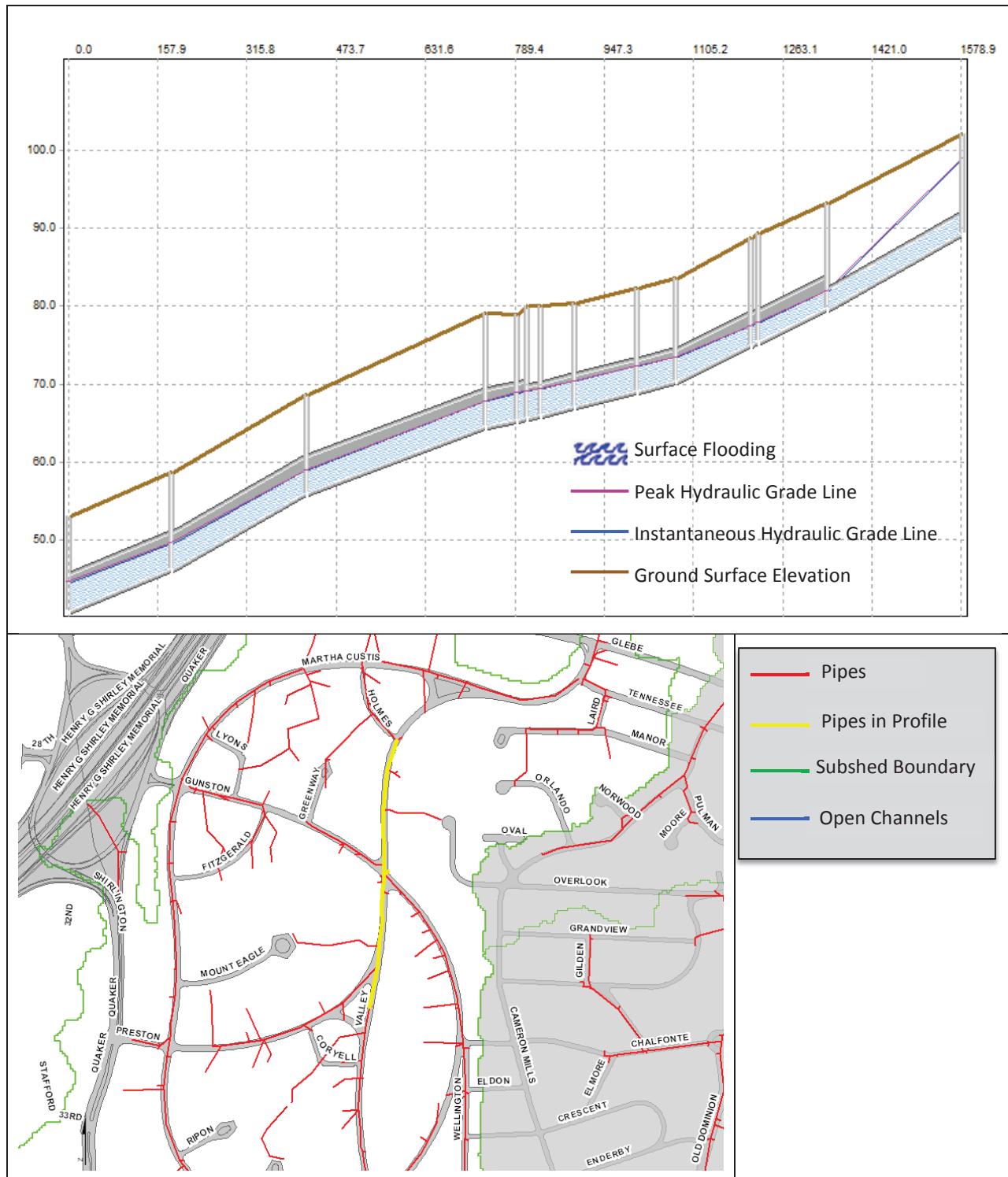


FIGURE 32

Profile 32 from 002816SMH to 000454IO (Existing IDF, Existing Boundary Condition)

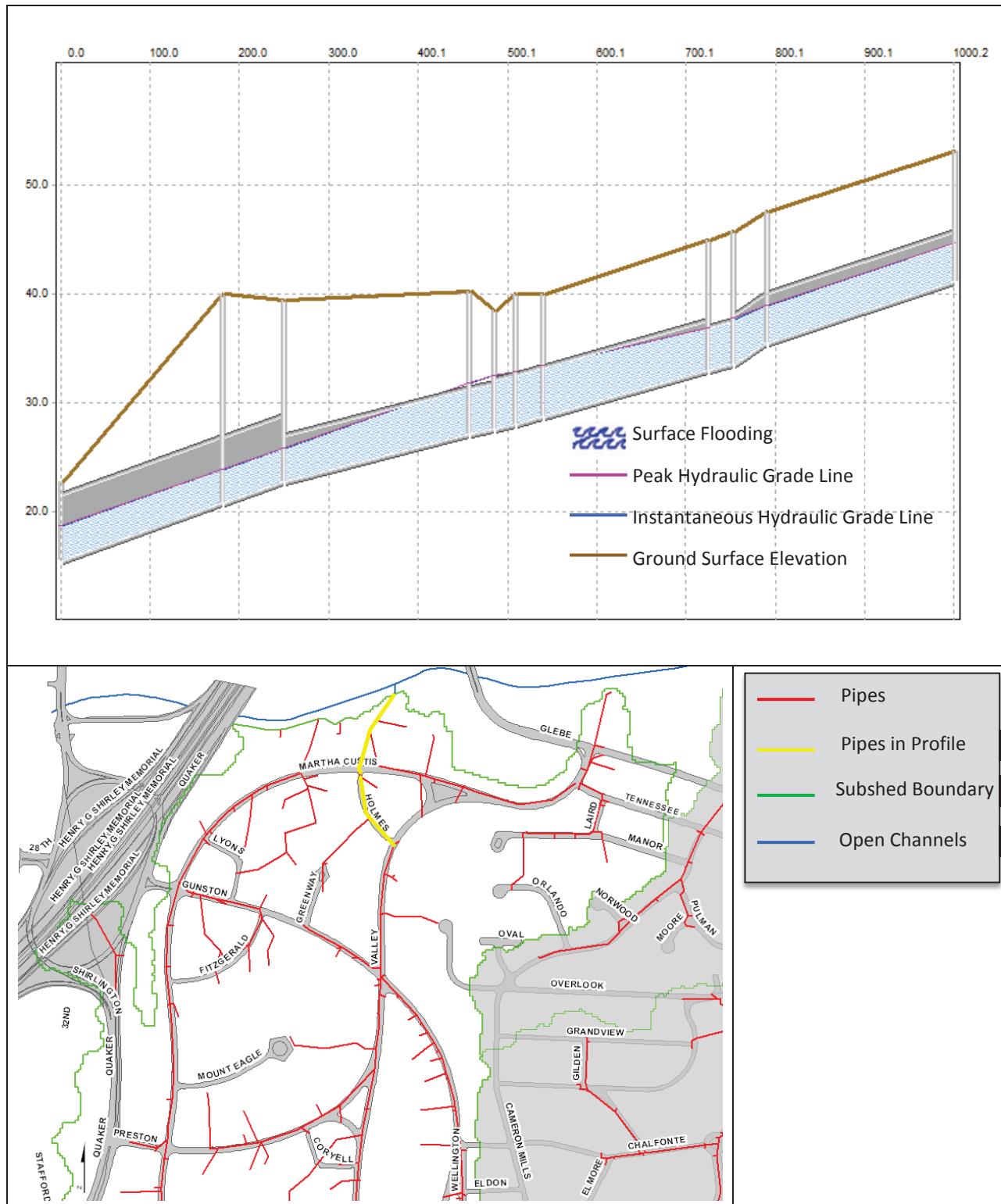


FIGURE 33

Profile 33 from 002808SMH to 000454IO (Existing IDF, Existing Boundary Condition)

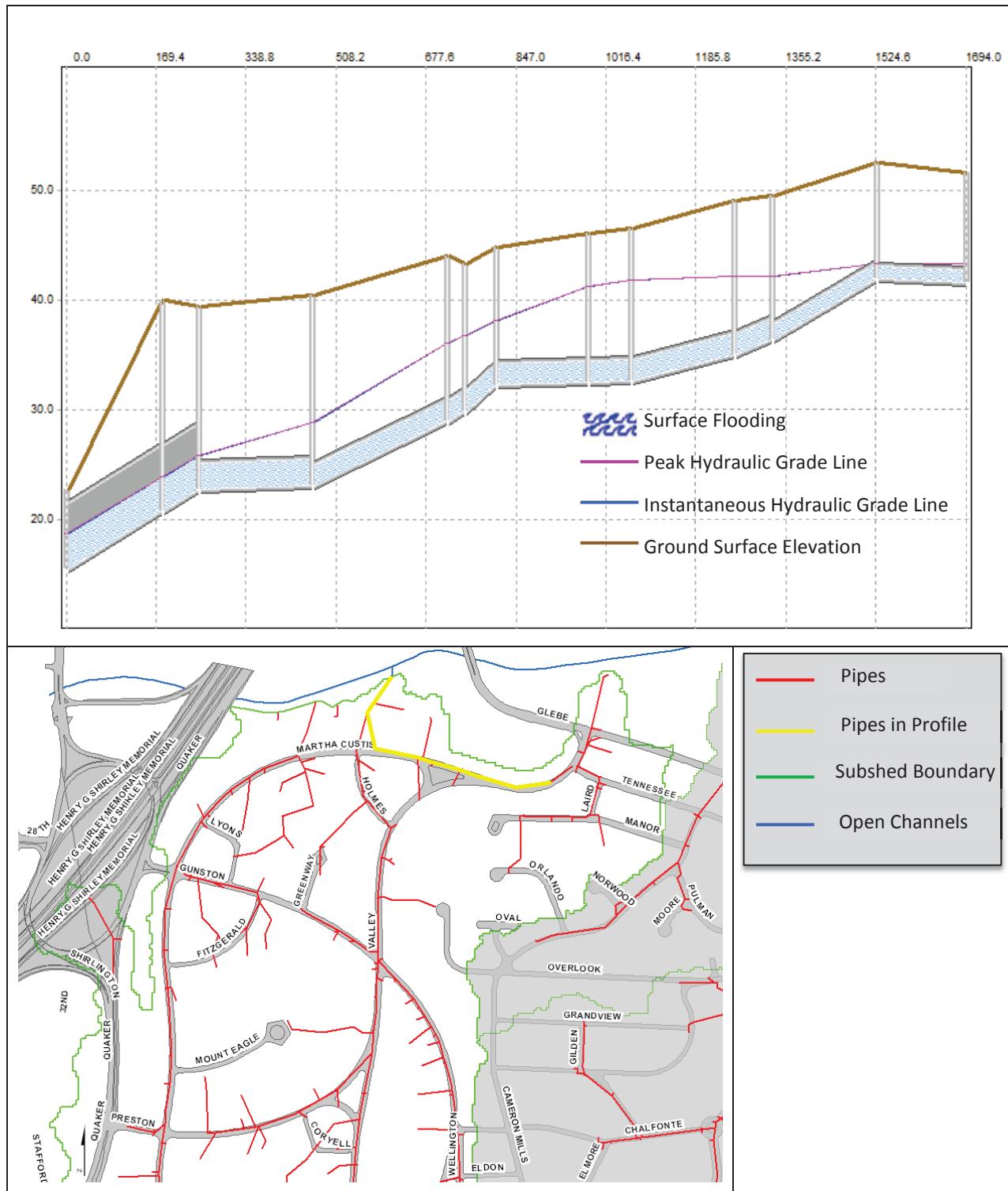


FIGURE 34

Profile 34 from 007365IN to 000463IO (Existing IDF, Existing Boundary Condition)

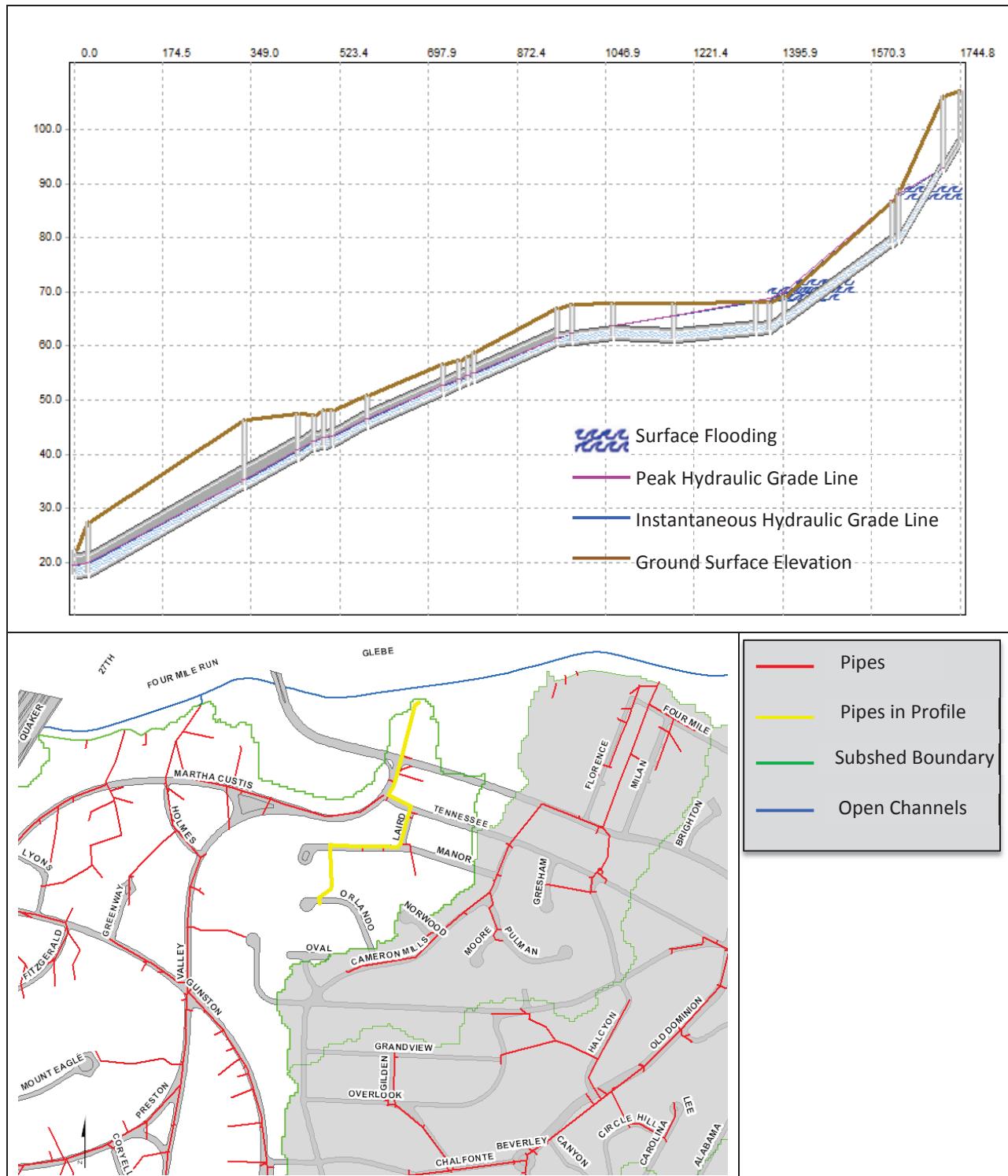


FIGURE 35

Profile 35 from 006983IN to 002833SMH (Existing IDF, Existing Boundary Condition)

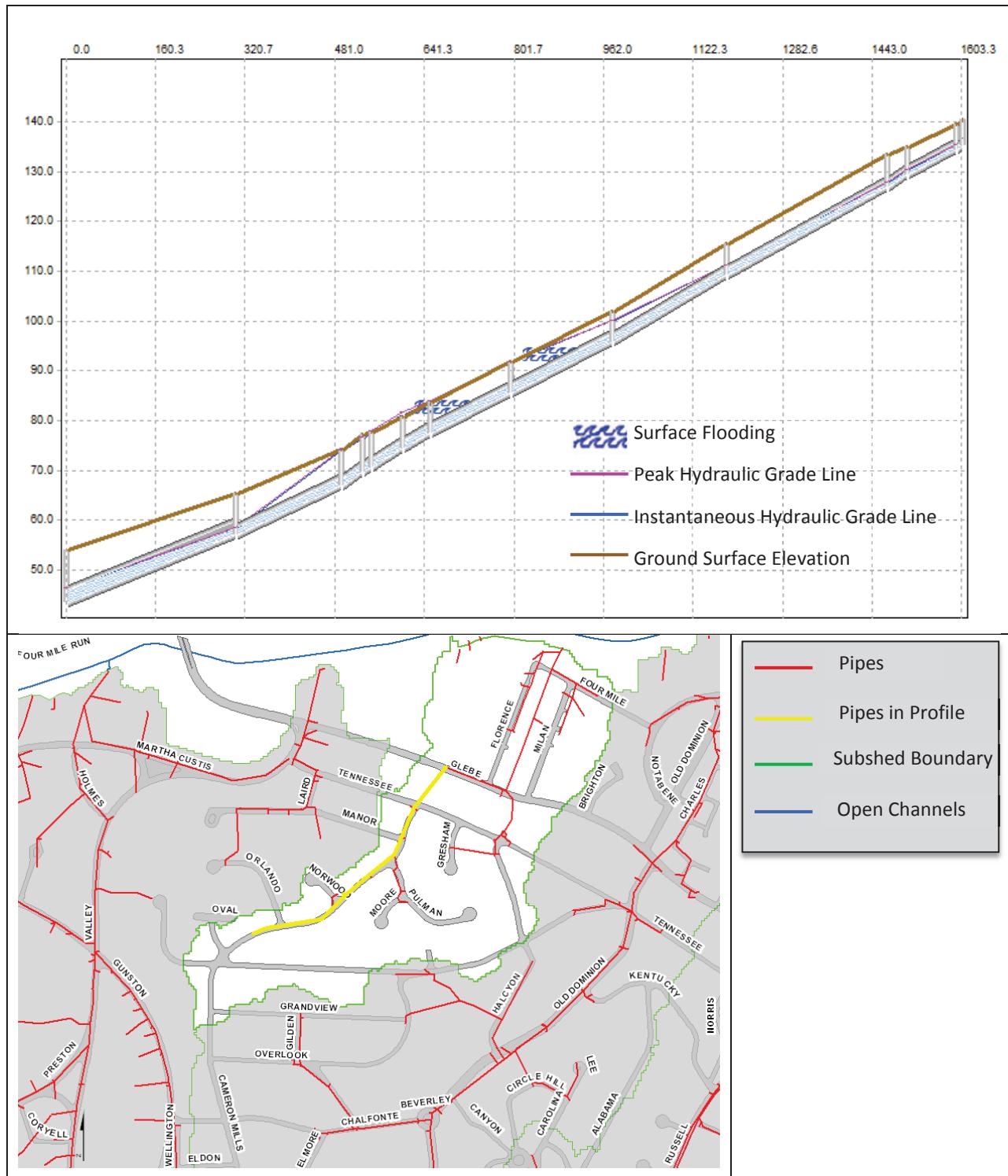


FIGURE 36

Profile 36 from 002833SMH to 000456IO (Existing IDF, Existing Boundary Condition)

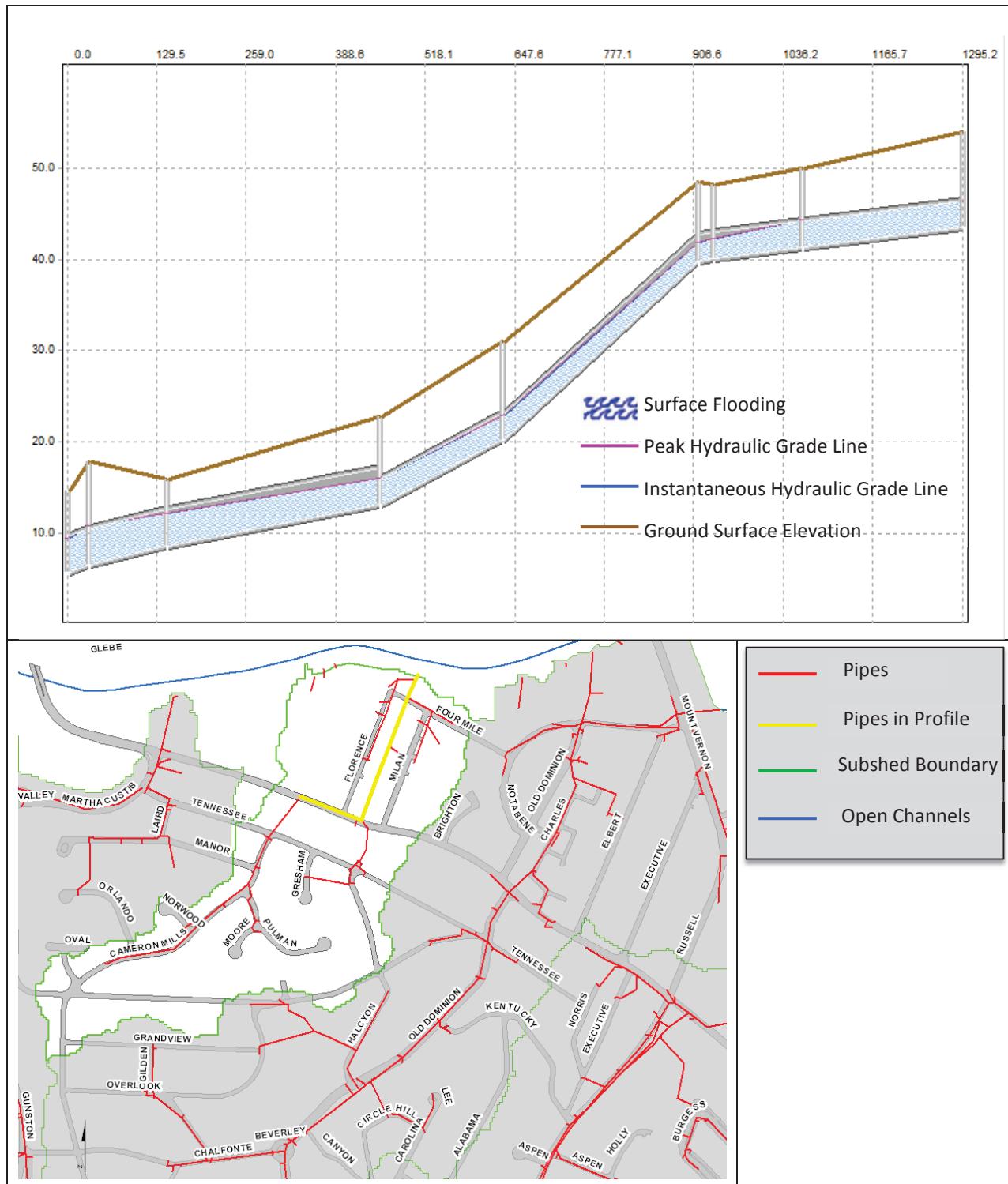


FIGURE 37

Profile 37 from 007428IN to 000456IO (Existing IDF, Existing Boundary Condition)

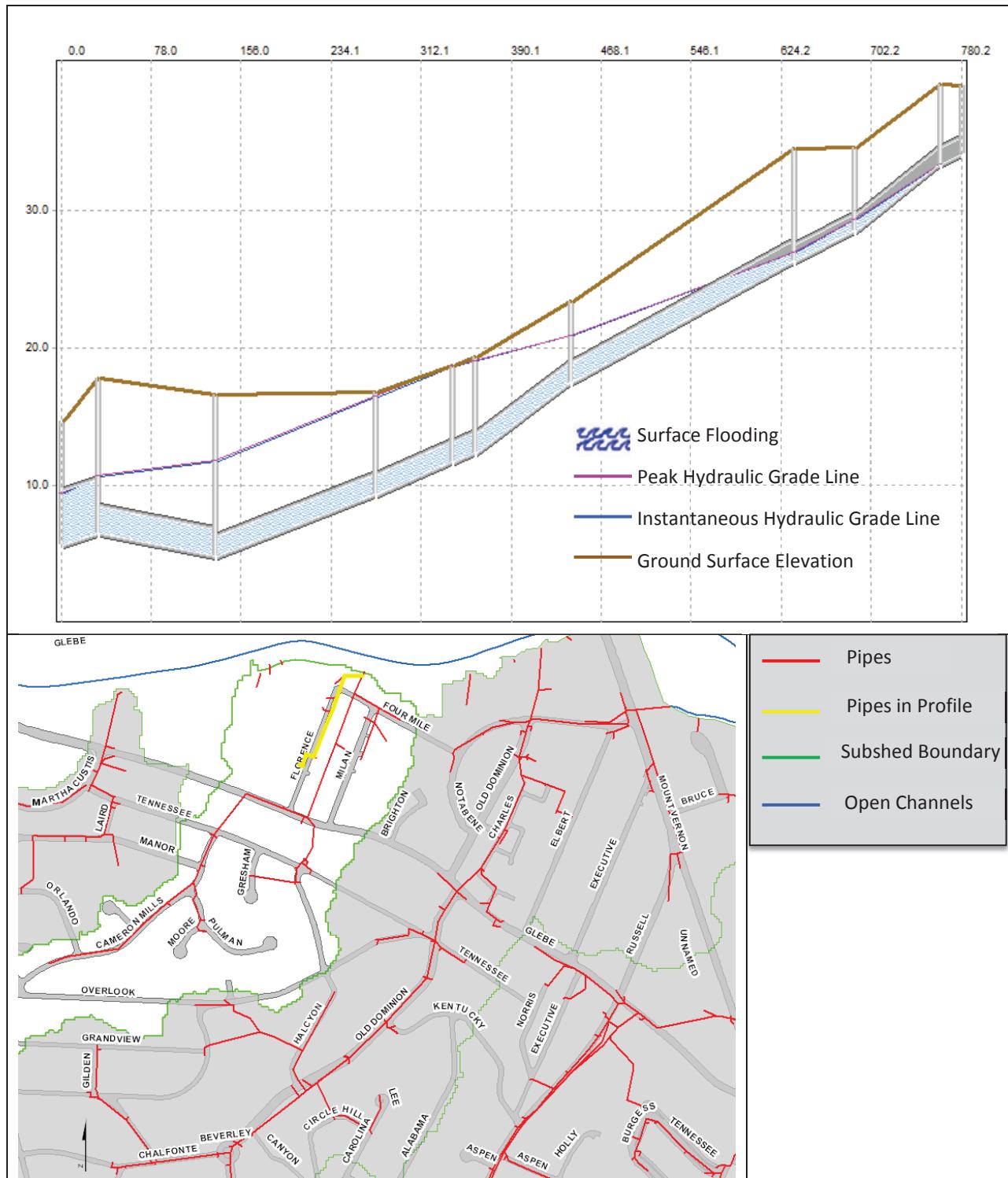


FIGURE 38

Profile 38 from 006989IN to 002233SMH (Existing IDF, Existing Boundary Condition)

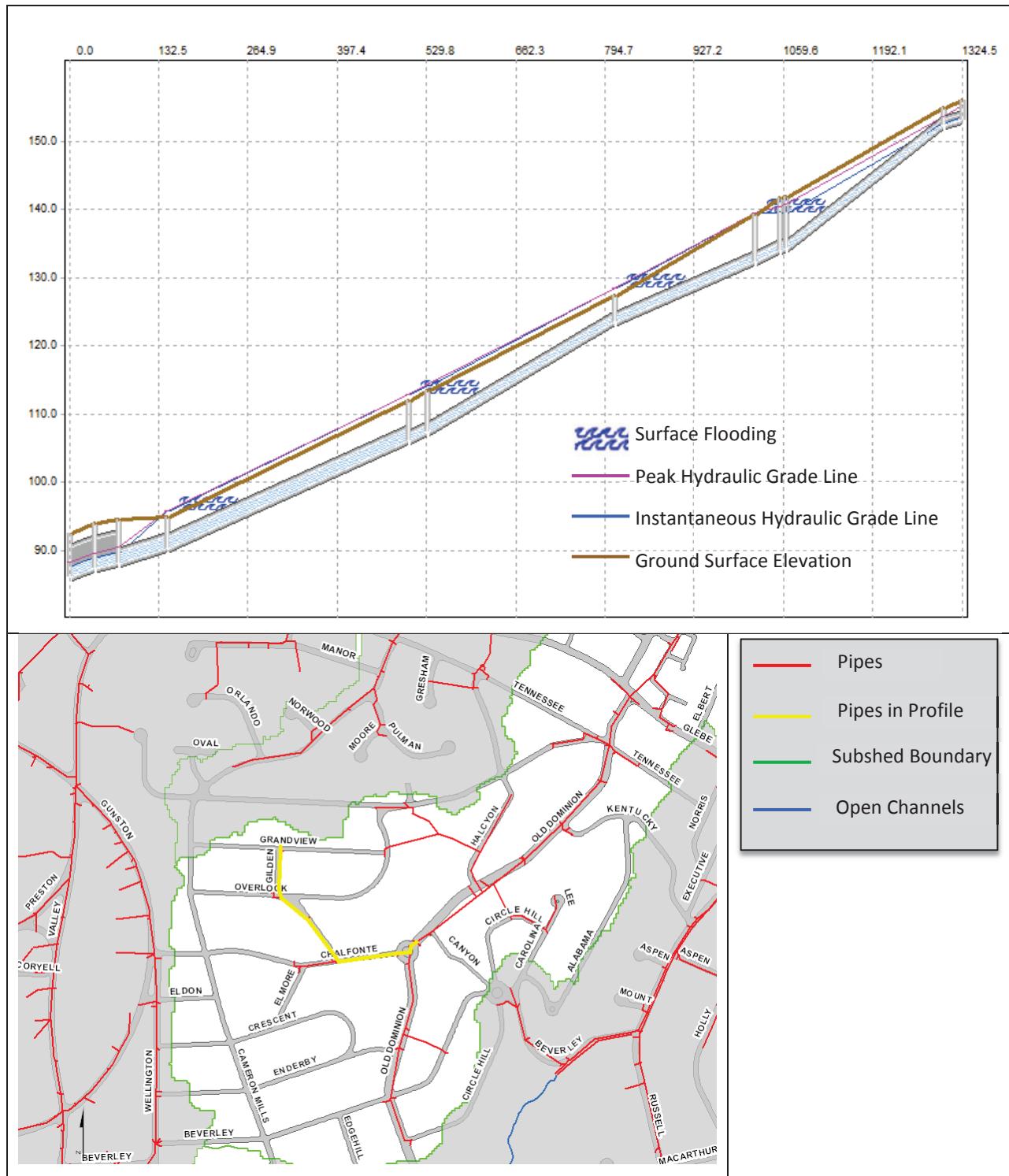


FIGURE 39

Profile 39 from 002233SMH to 002844SMH (Existing IDF, Existing Boundary Condition)

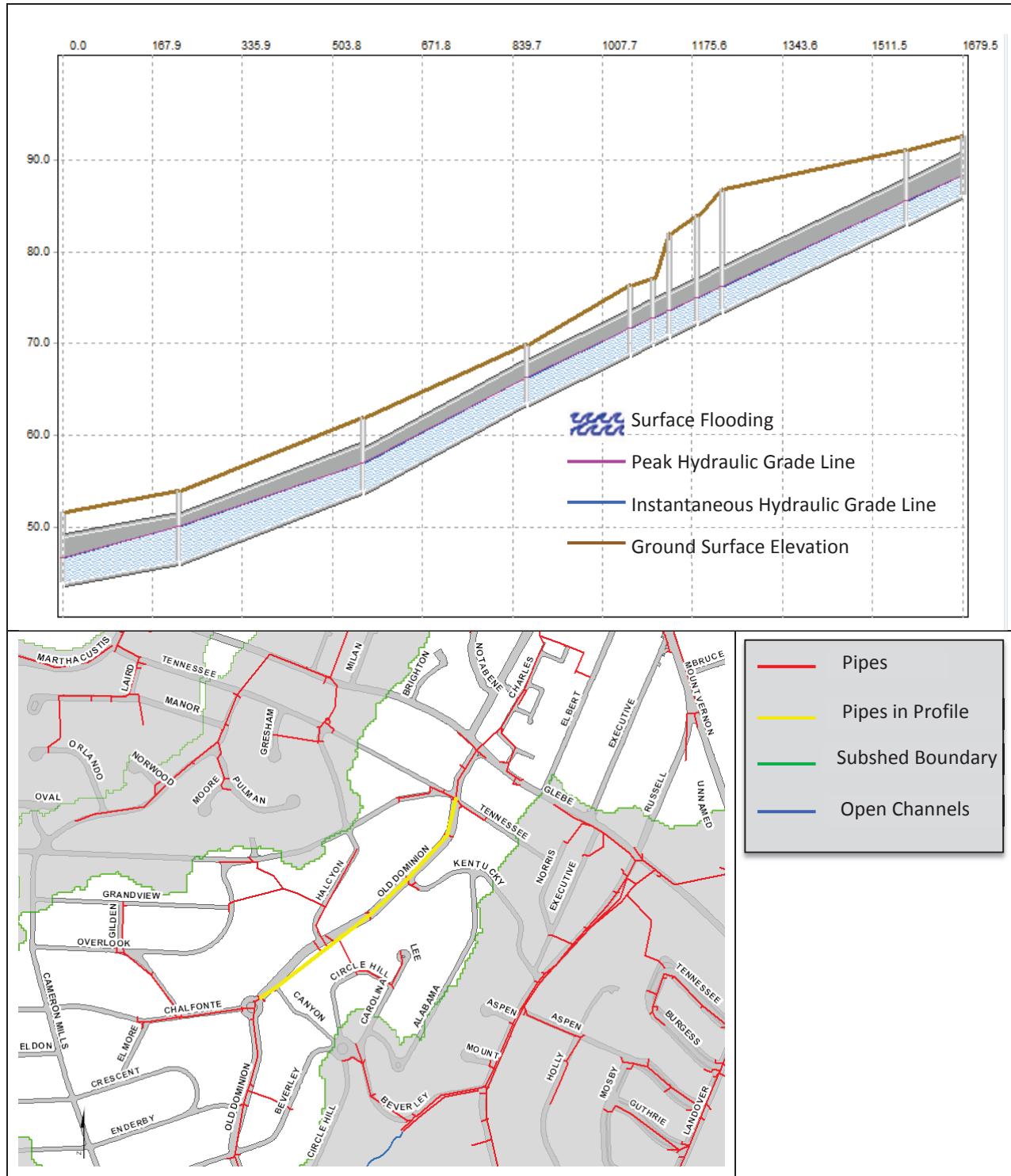


FIGURE 40

Profile 40 from 002844SMH to 000417IO (Existing IDF, Existing Boundary Condition)

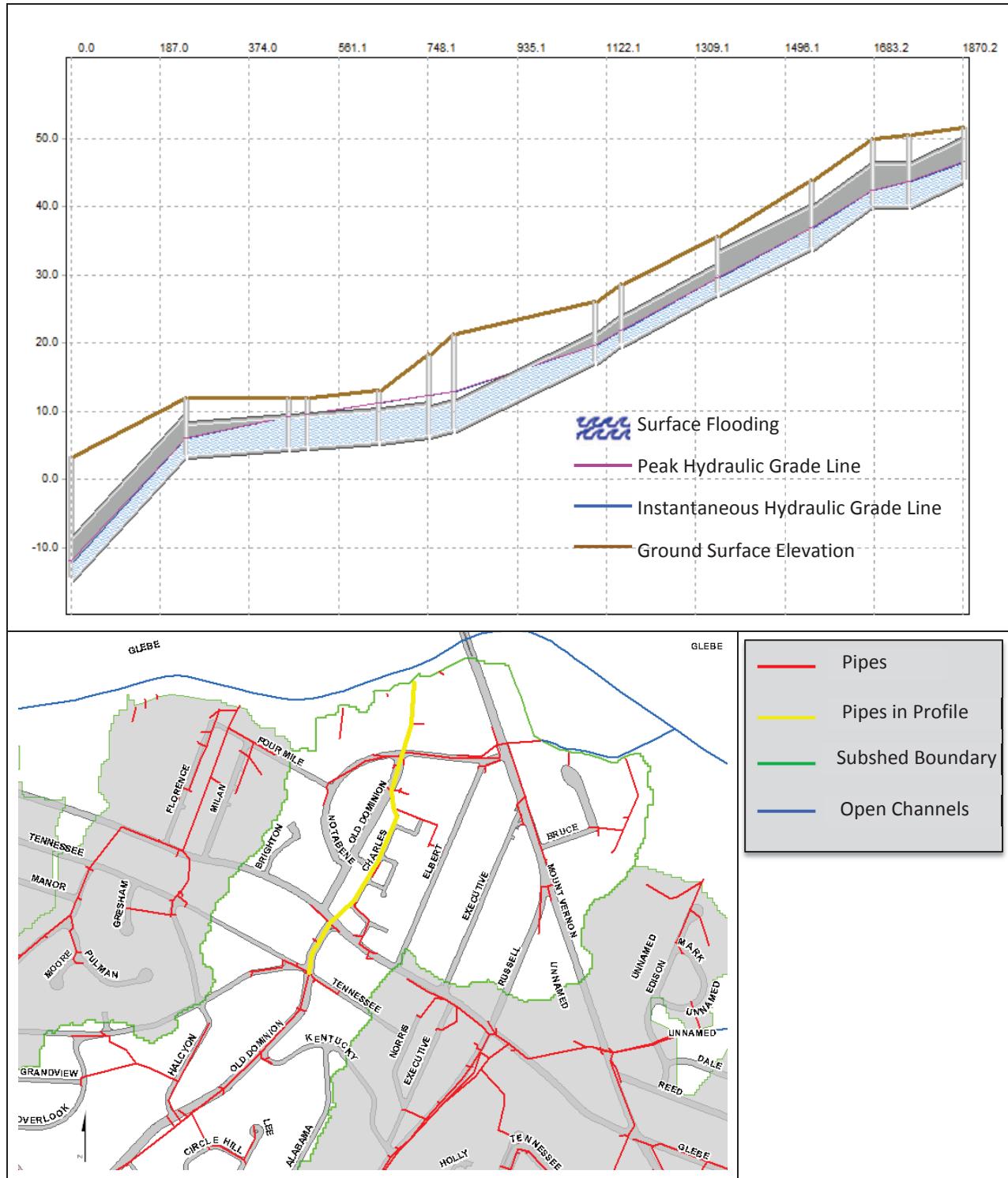


FIGURE 41

Profile 41 from 002828SMH to 000422IO (Existing IDF, Existing Boundary Condition)

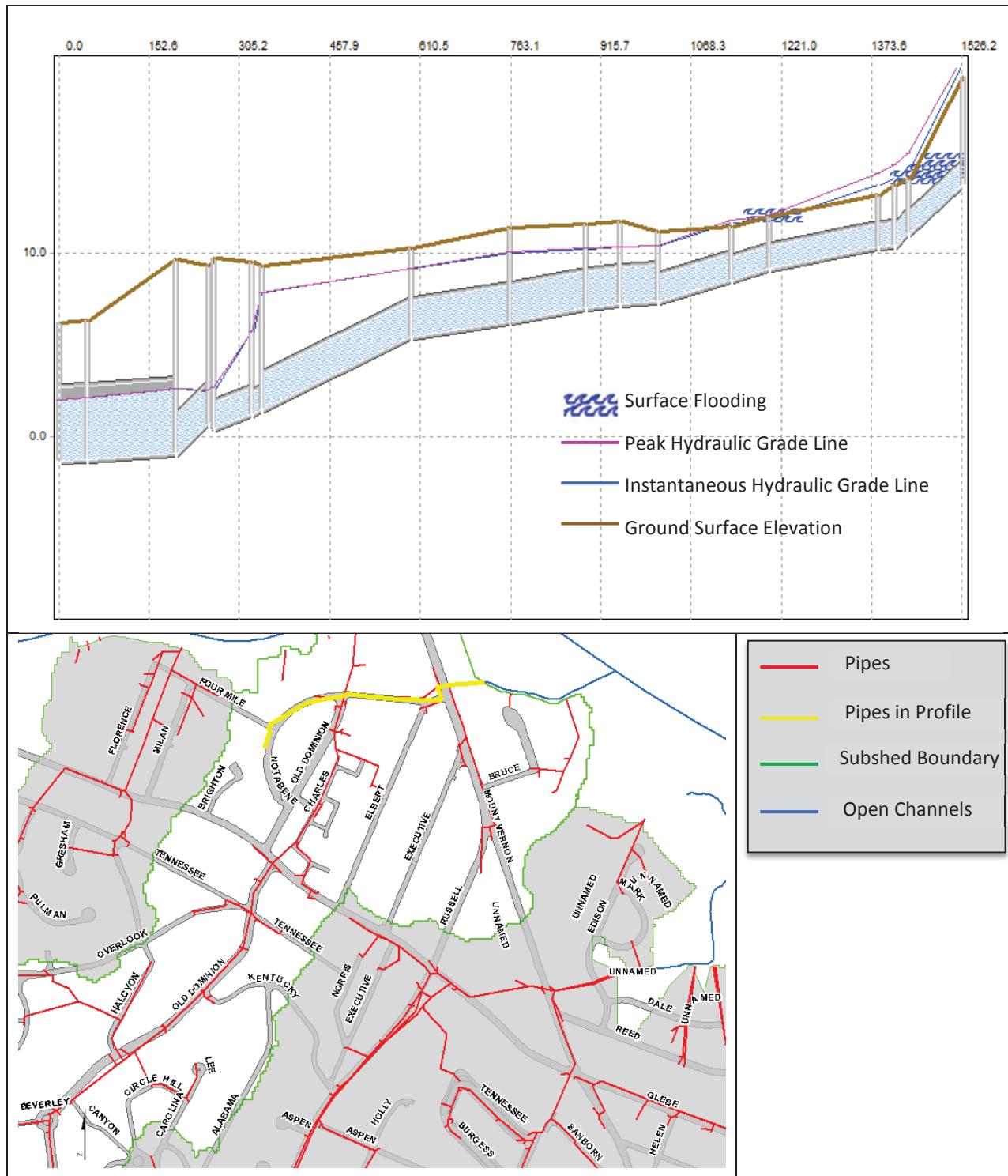


FIGURE 42

Profile 42 from 008463IN to 000422IO (Existing IDF, Existing Boundary Condition)

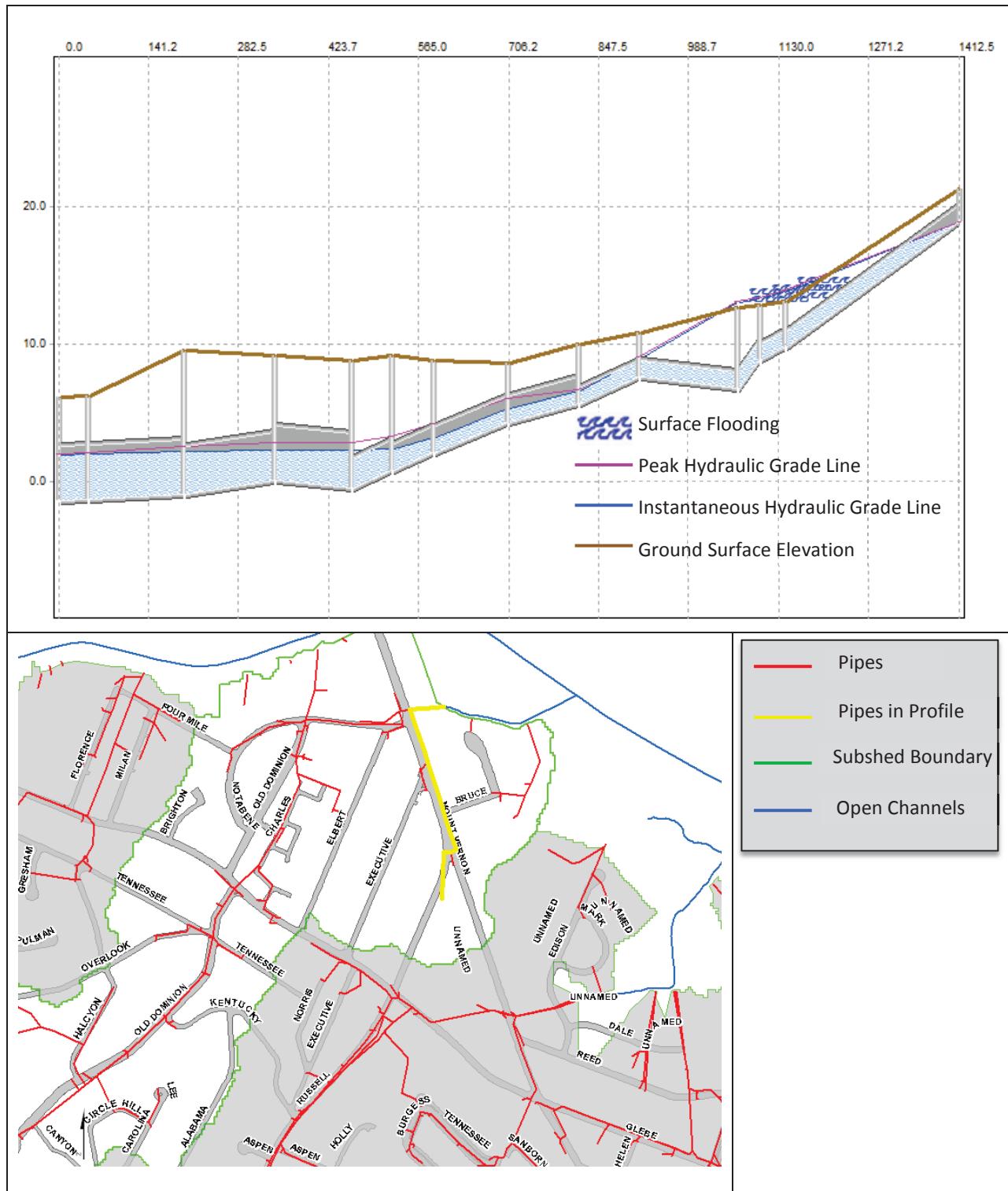
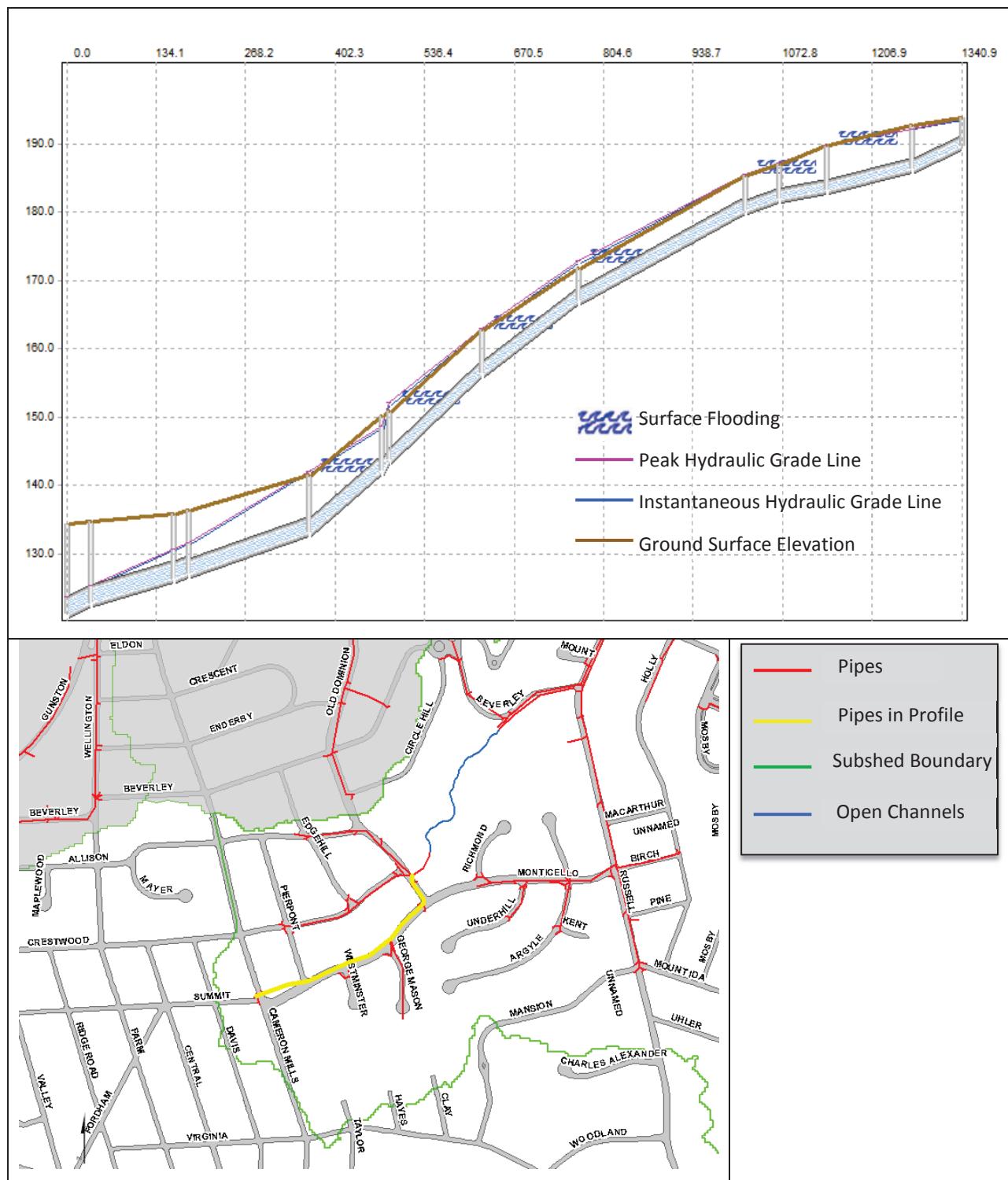


FIGURE 43

Profile 43 from 000282CB to 002129SMH (Existing IDF, Existing Boundary Condition)



## FIGURE 44

Profile 44 from 002129SMH to Node4005 (Existing IDF, Existing Boundary Condition)

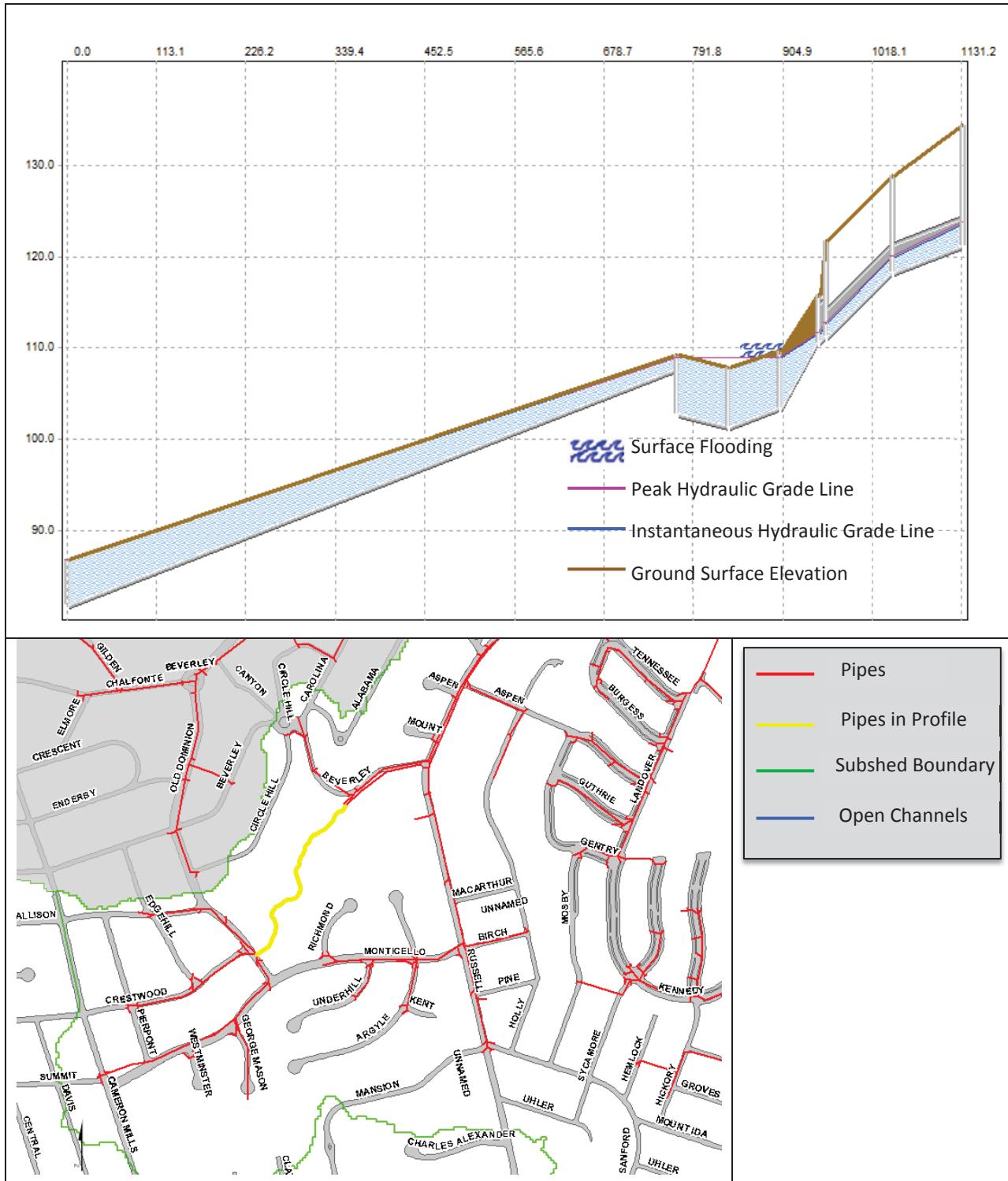


FIGURE 45

Profile 45 from 000442IO to 002752SMH (Existing IDF, Existing Boundary Condition)

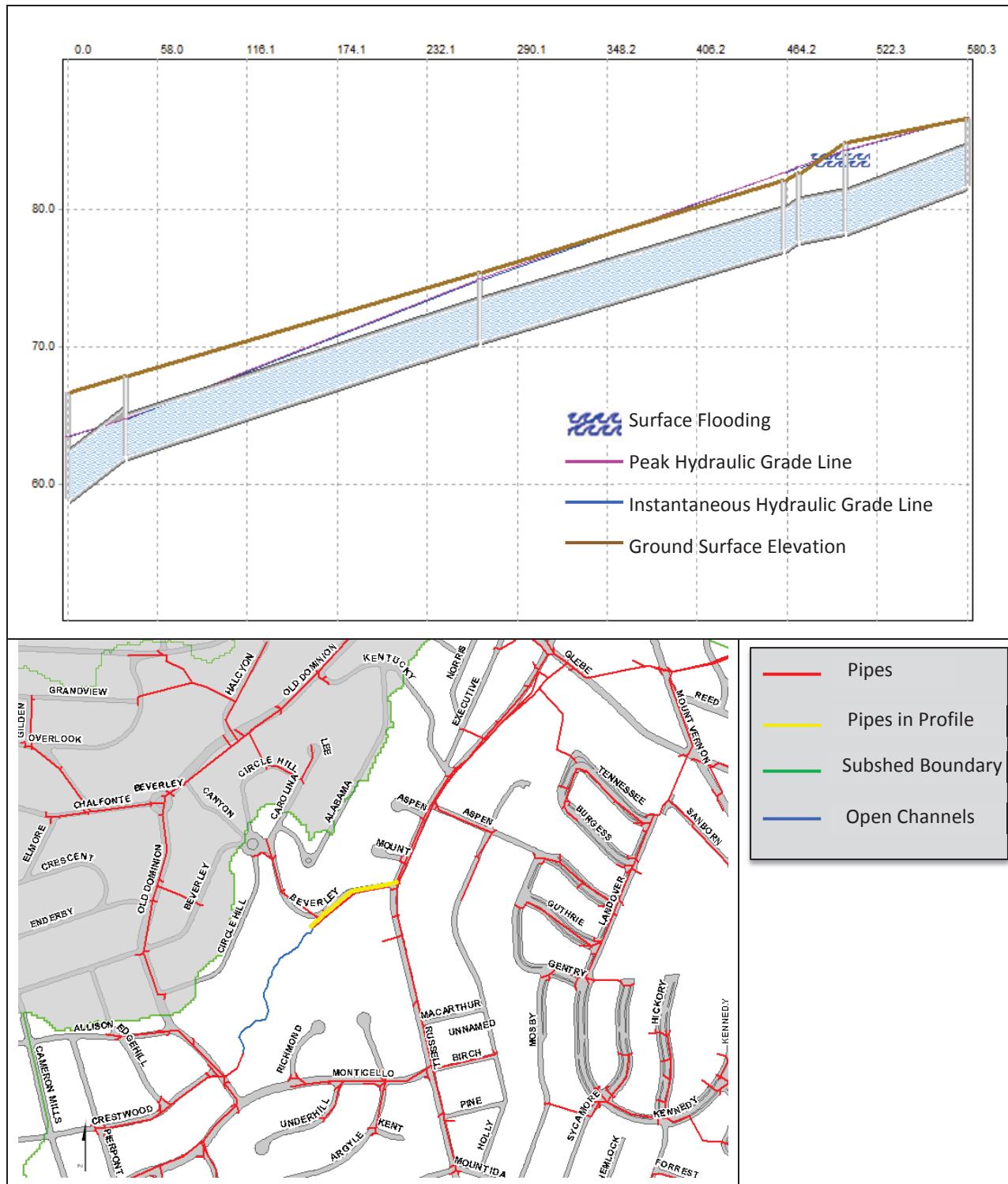
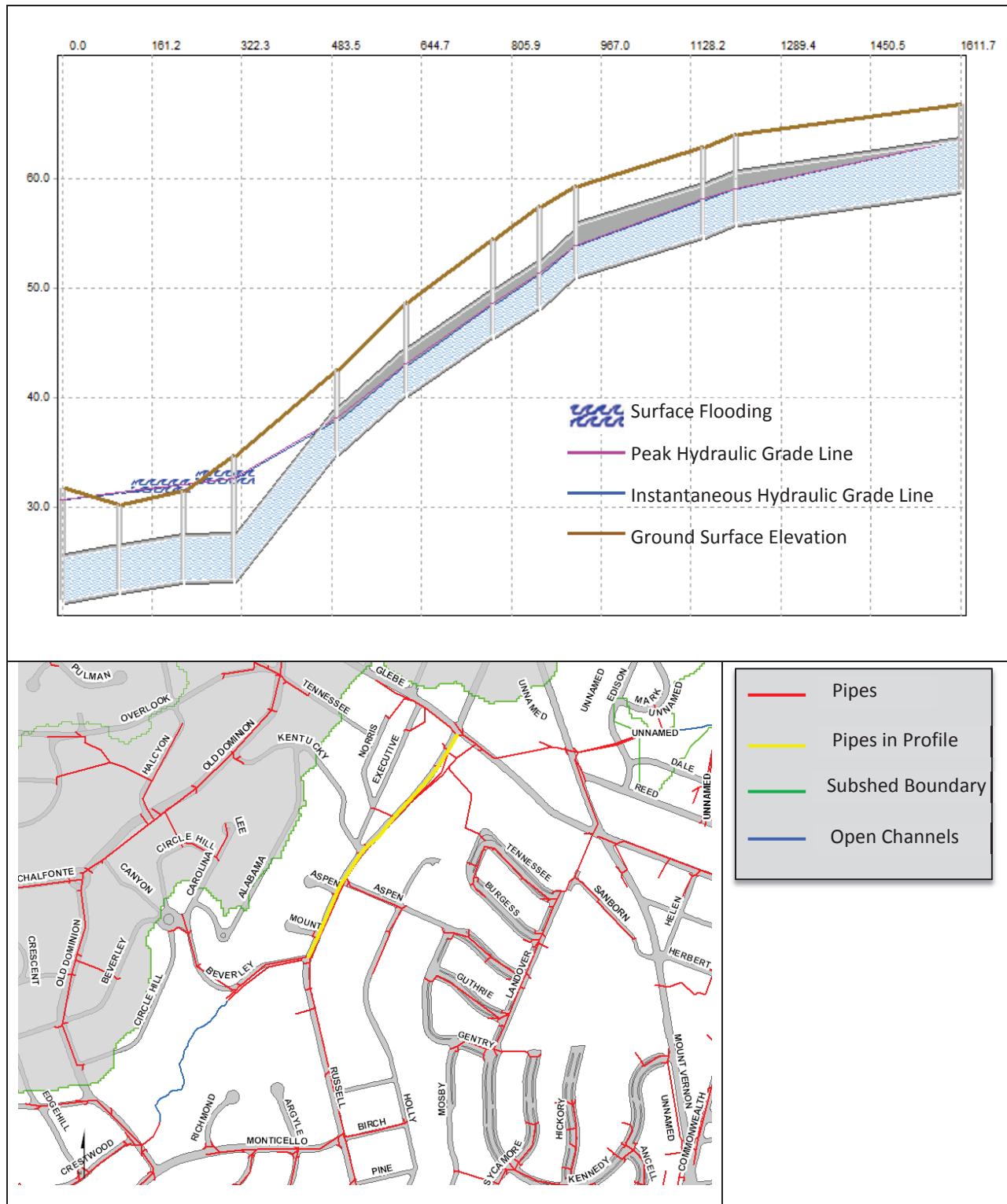


FIGURE 46

Profile 46 from 002752SMH to 002748SMH (Existing IDF, Existing Boundary Condition)



**FIGURE 47**

Profile 47 from 002748SMH to 000431IO (Existing IDF, Existing Boundary Condition)

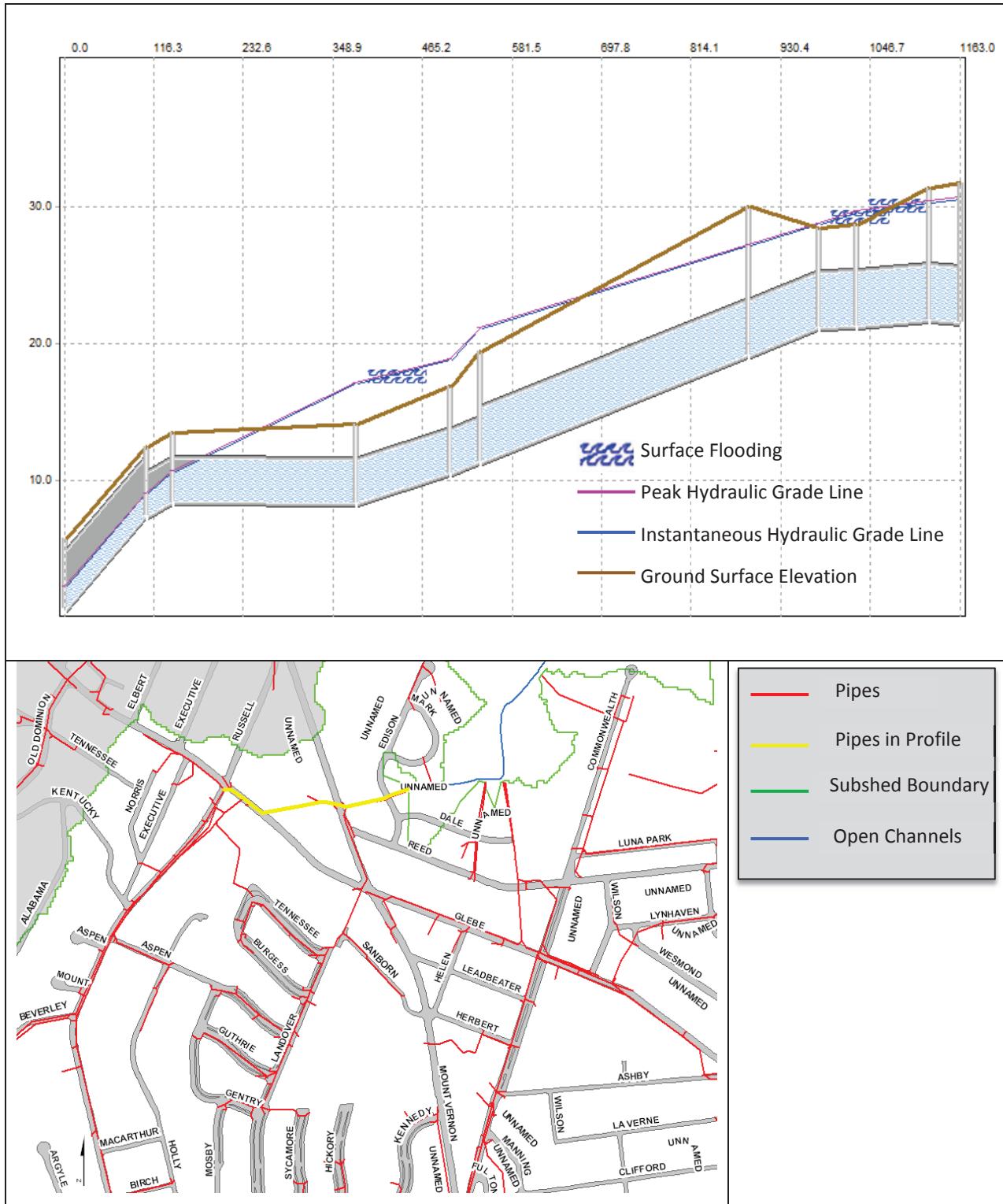


FIGURE 48

Profile 48 from 006563IN to 002730SMH (Existing IDF, Existing Boundary Condition)

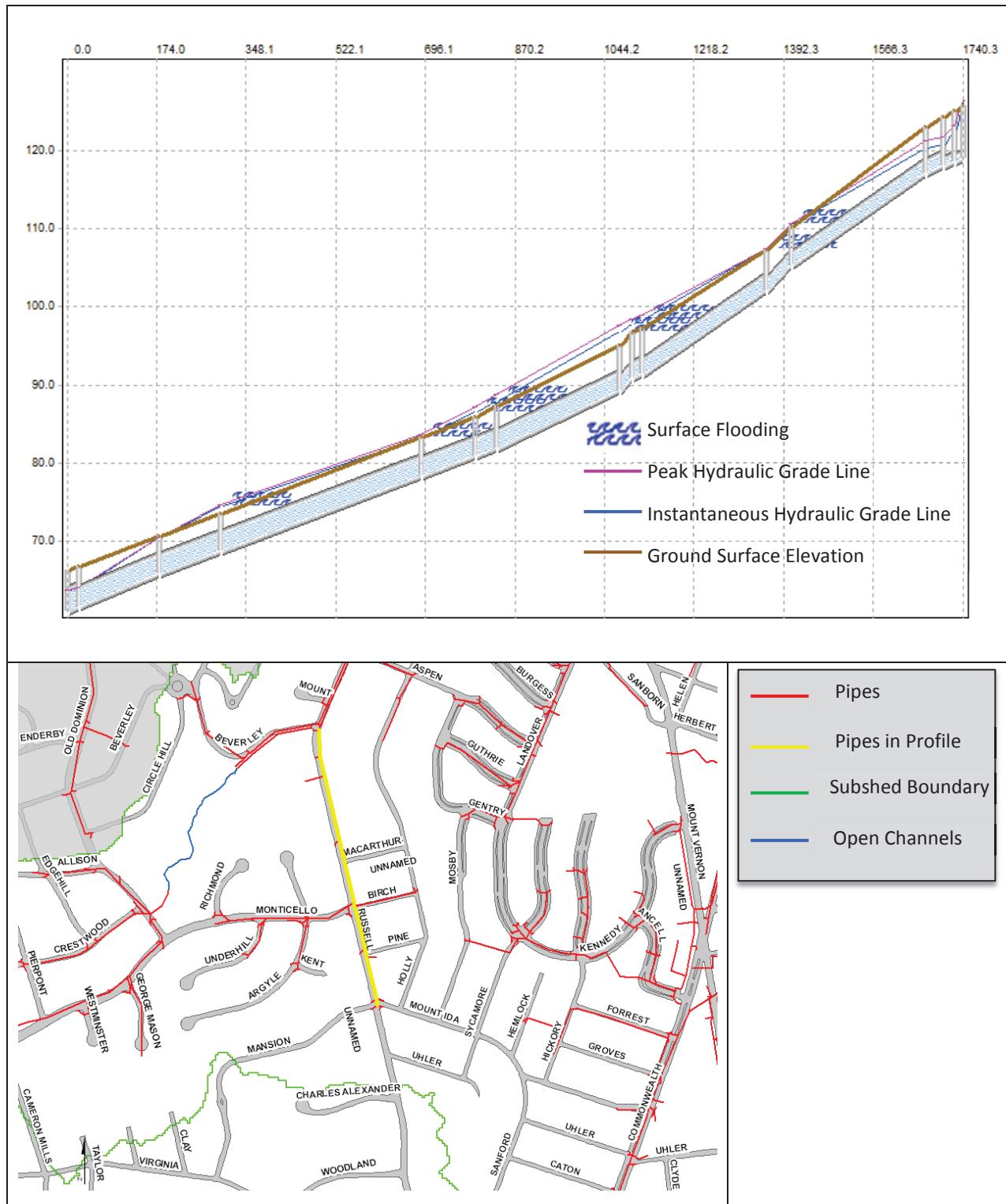
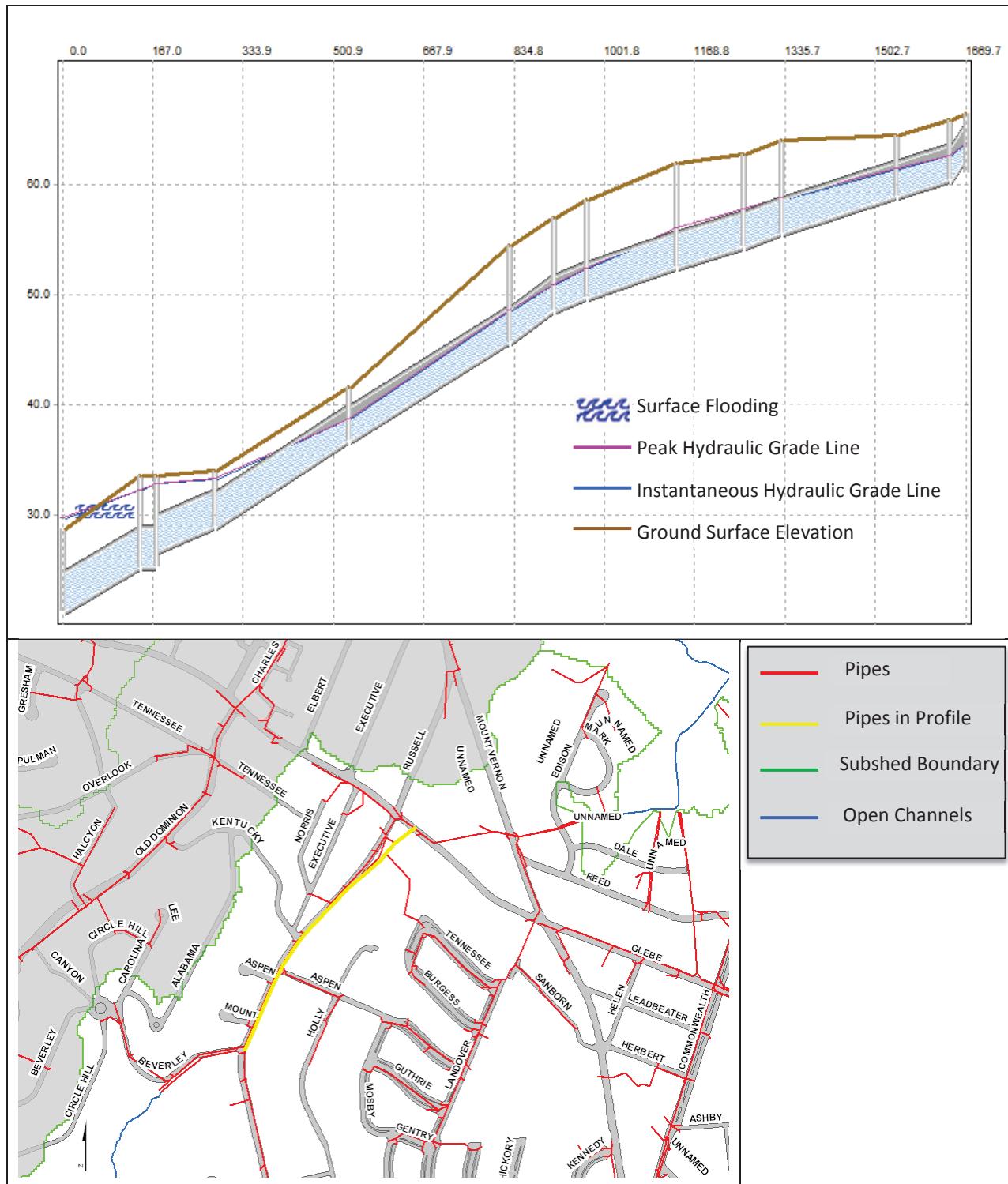


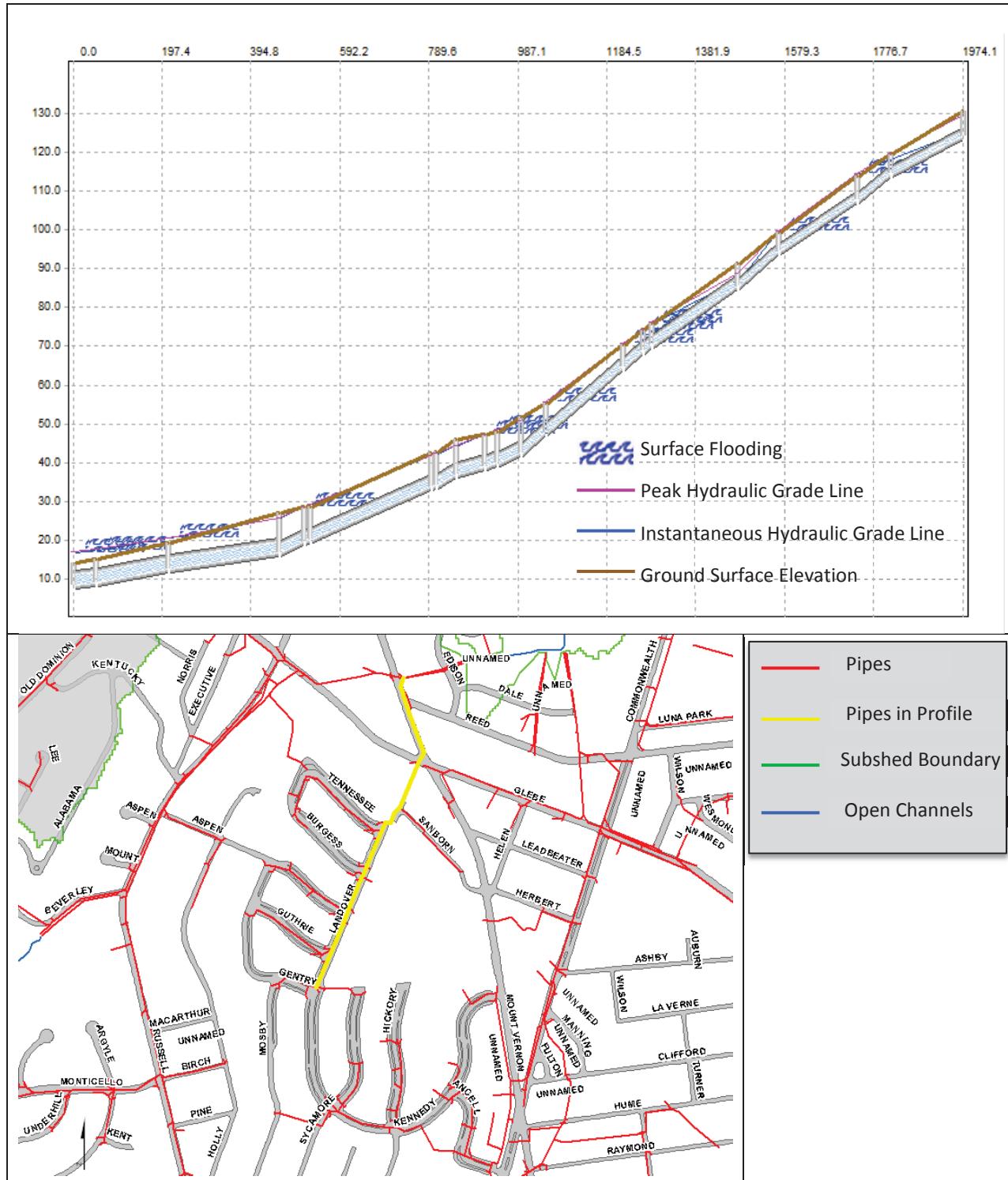
FIGURE 49

Profile 49 from 002730SMH to 002209SMH (Existing IDF, Existing Boundary Condition)



## FIGURE 50

Profile 50 from 002172SMH to 002221SMH (Existing IDF, Existing Boundary Condition)



## FIGURE 51

Profile 51 from 002713SMH to 002708SMH (Existing IDF, Existing Boundary Condition)

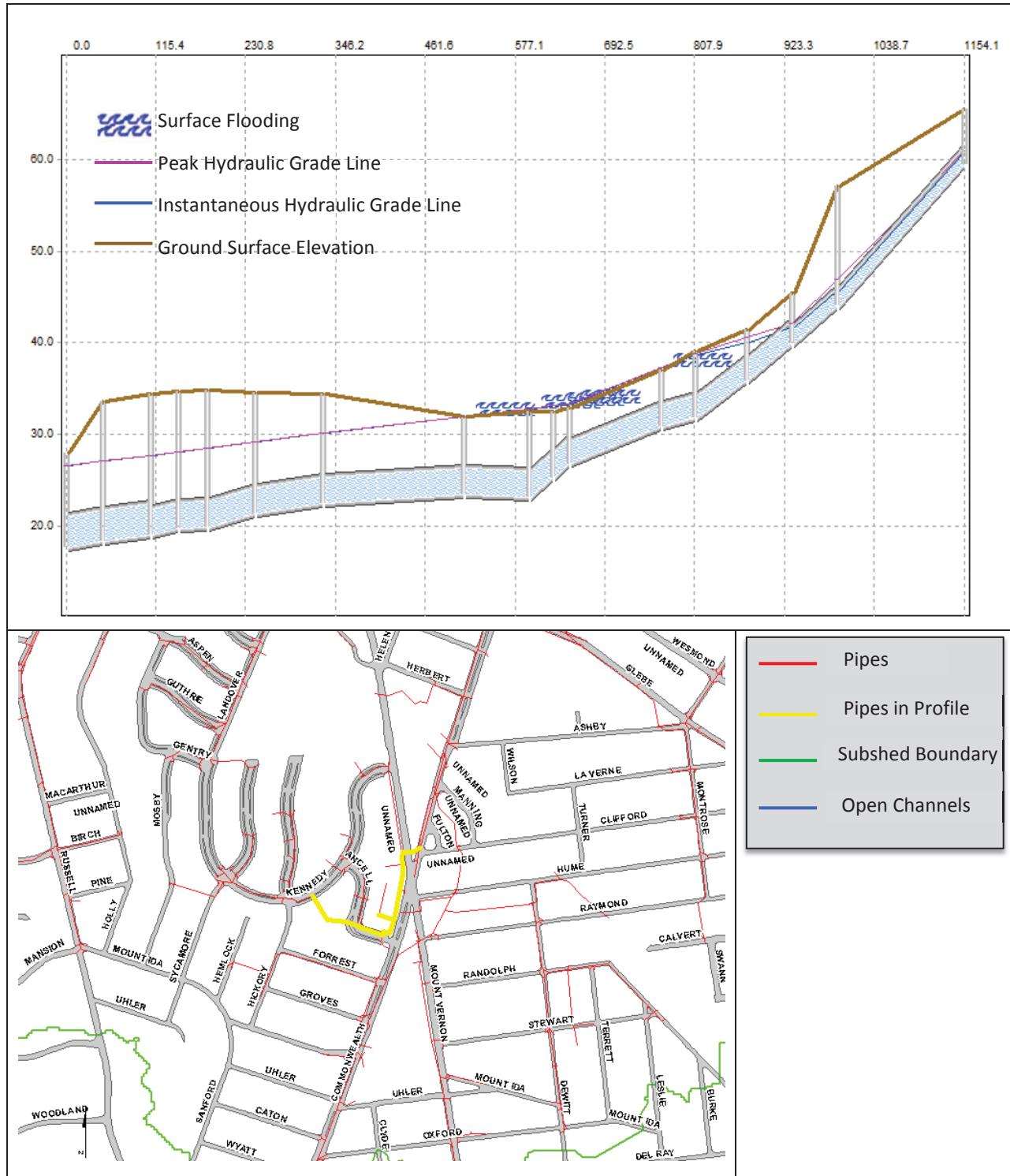


FIGURE 52

Profile 52 from 002708SMH to 002749SMH (Existing IDF, Existing Boundary Condition)

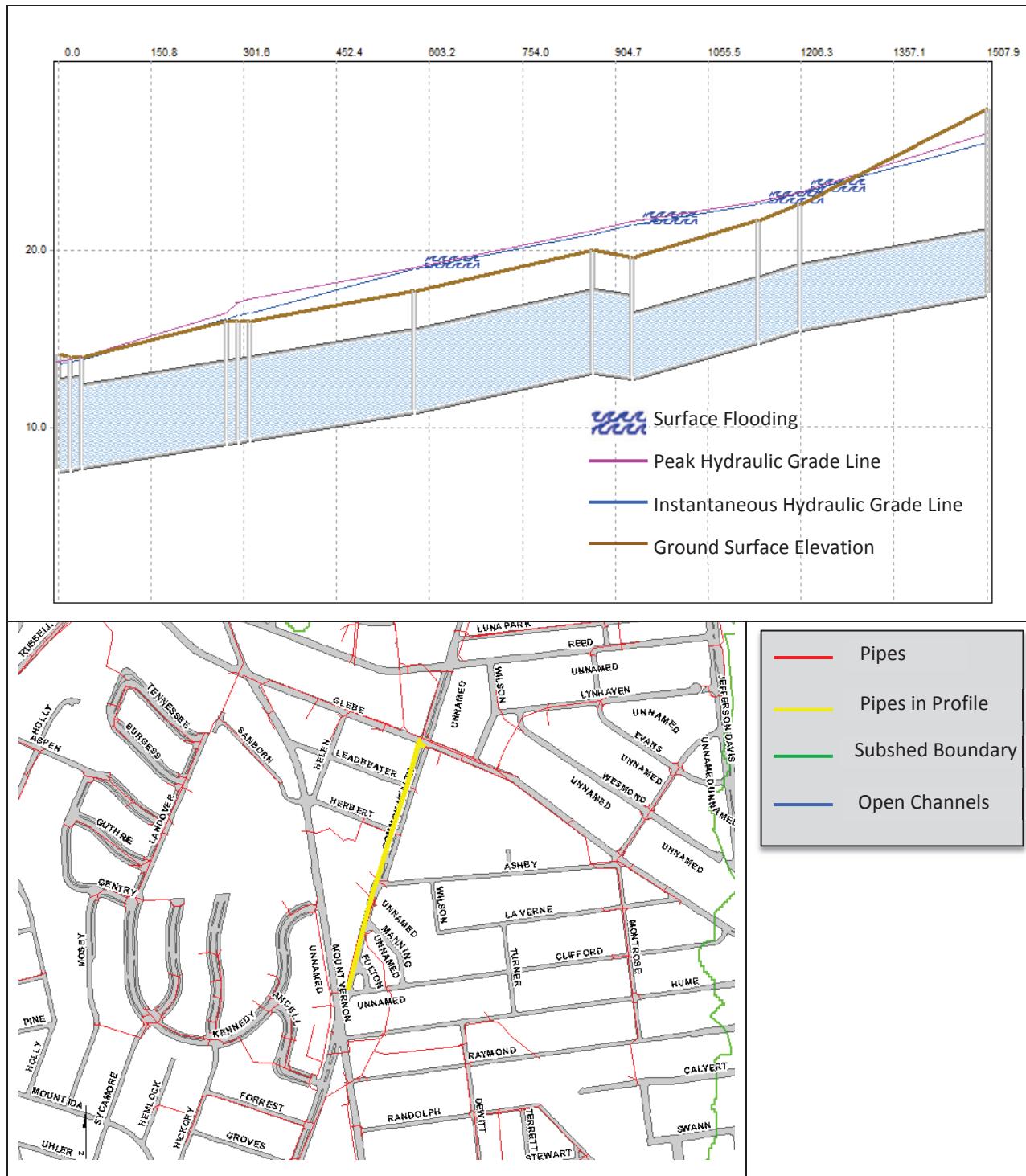


FIGURE 53

Profile 53 from 000159CB to 001190ND (Existing IDF, Existing Boundary Condition)

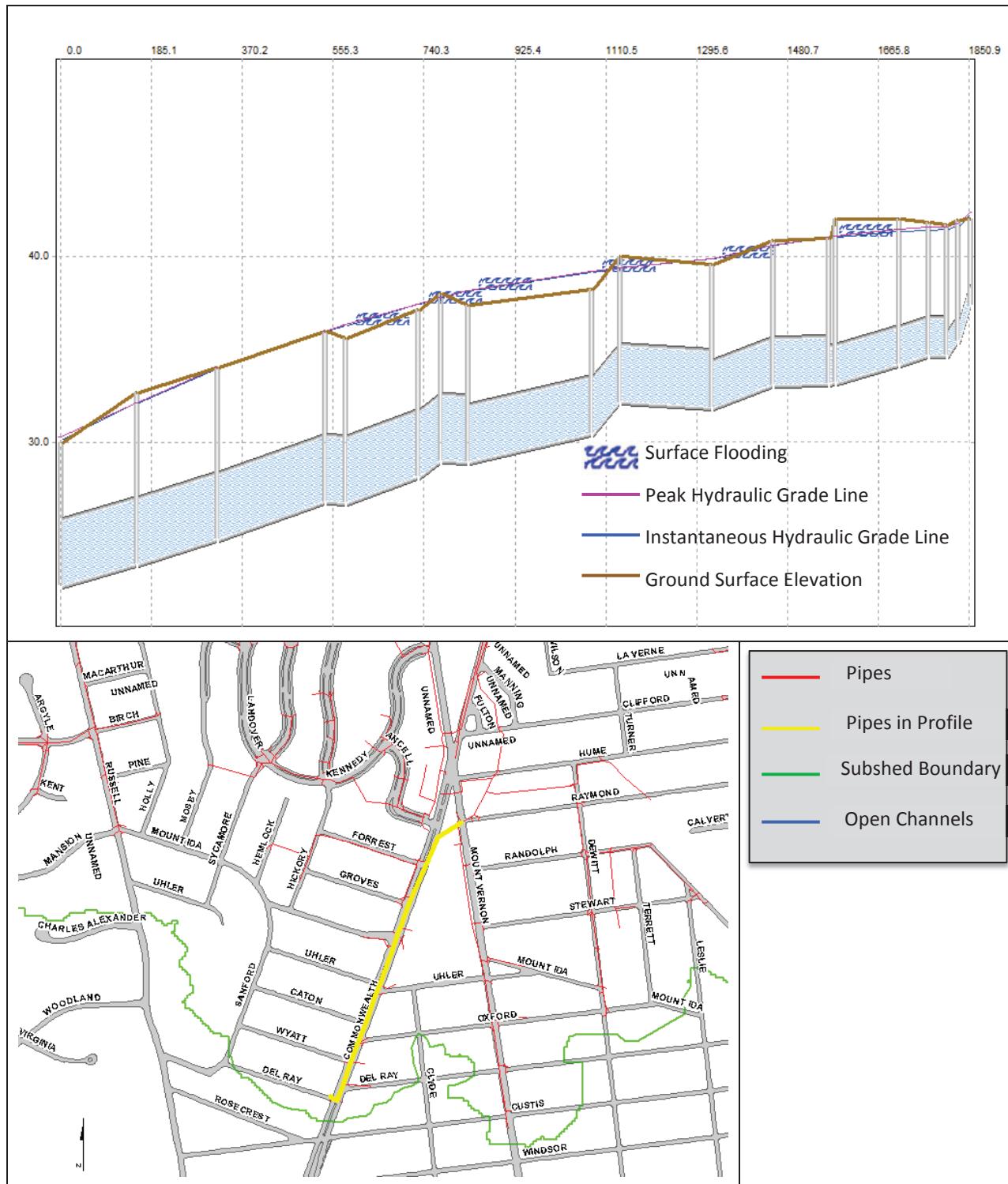
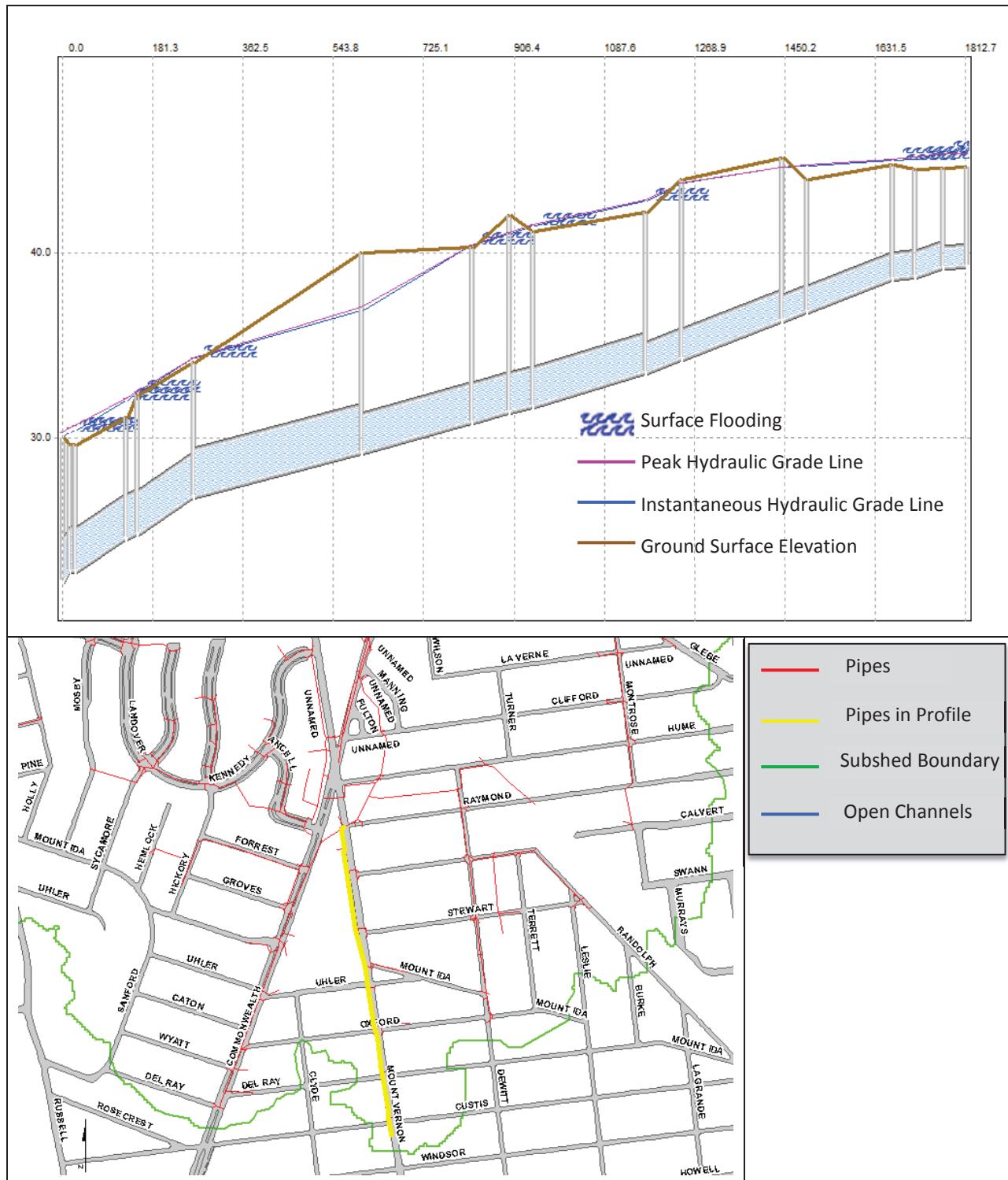


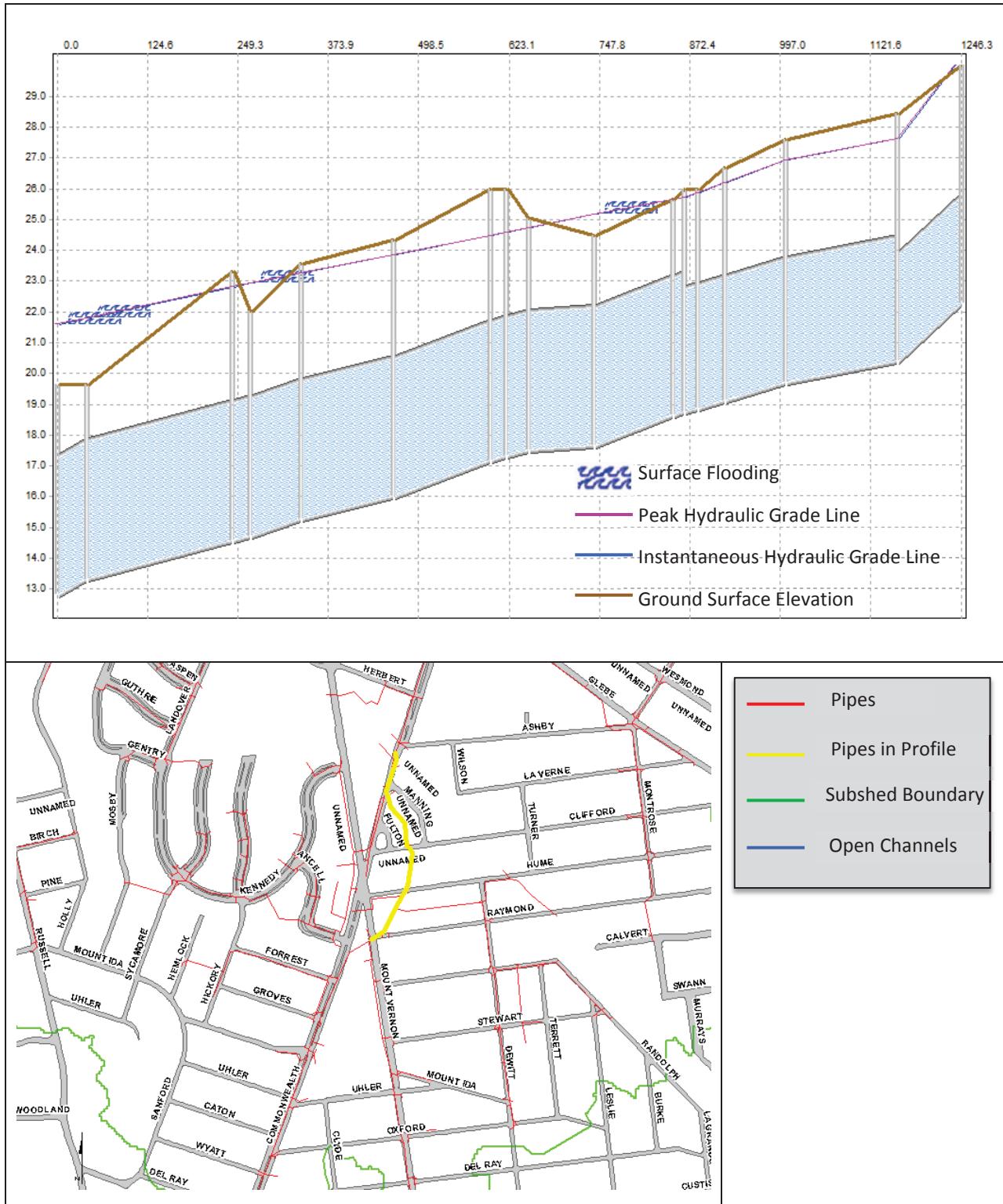
FIGURE 54

Profile 54 from 001141ND to 001190ND (Existing IDF, Existing Boundary Condition)



## FIGURE 55

## Profile 55 001190ND to 002759SMH (Existing IDF, Existing Boundary Condition)



## FIGURE 56

## Profile 56 from 006607IN to 001199ND (Existing IDF, Existing Boundary Condition)

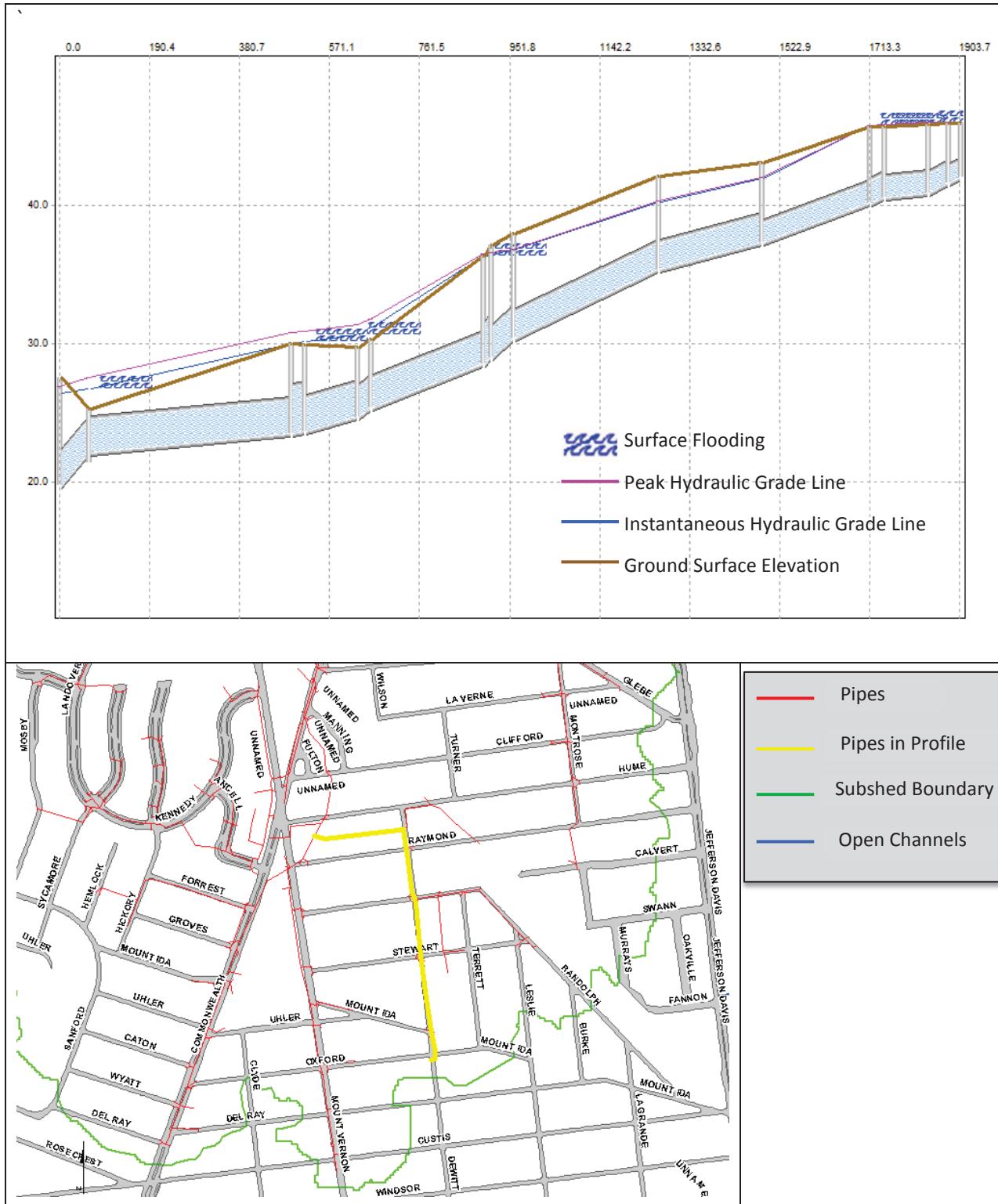
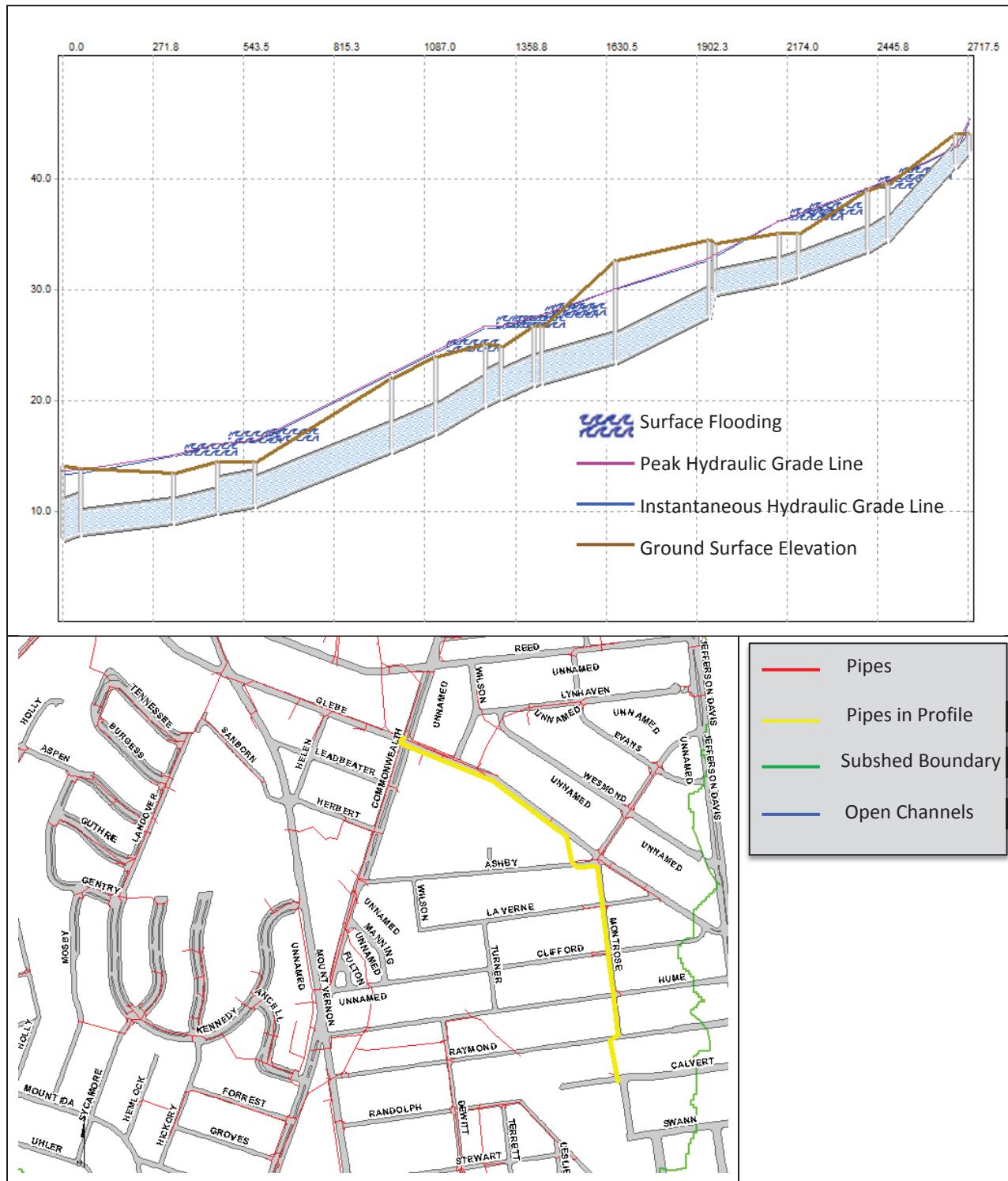


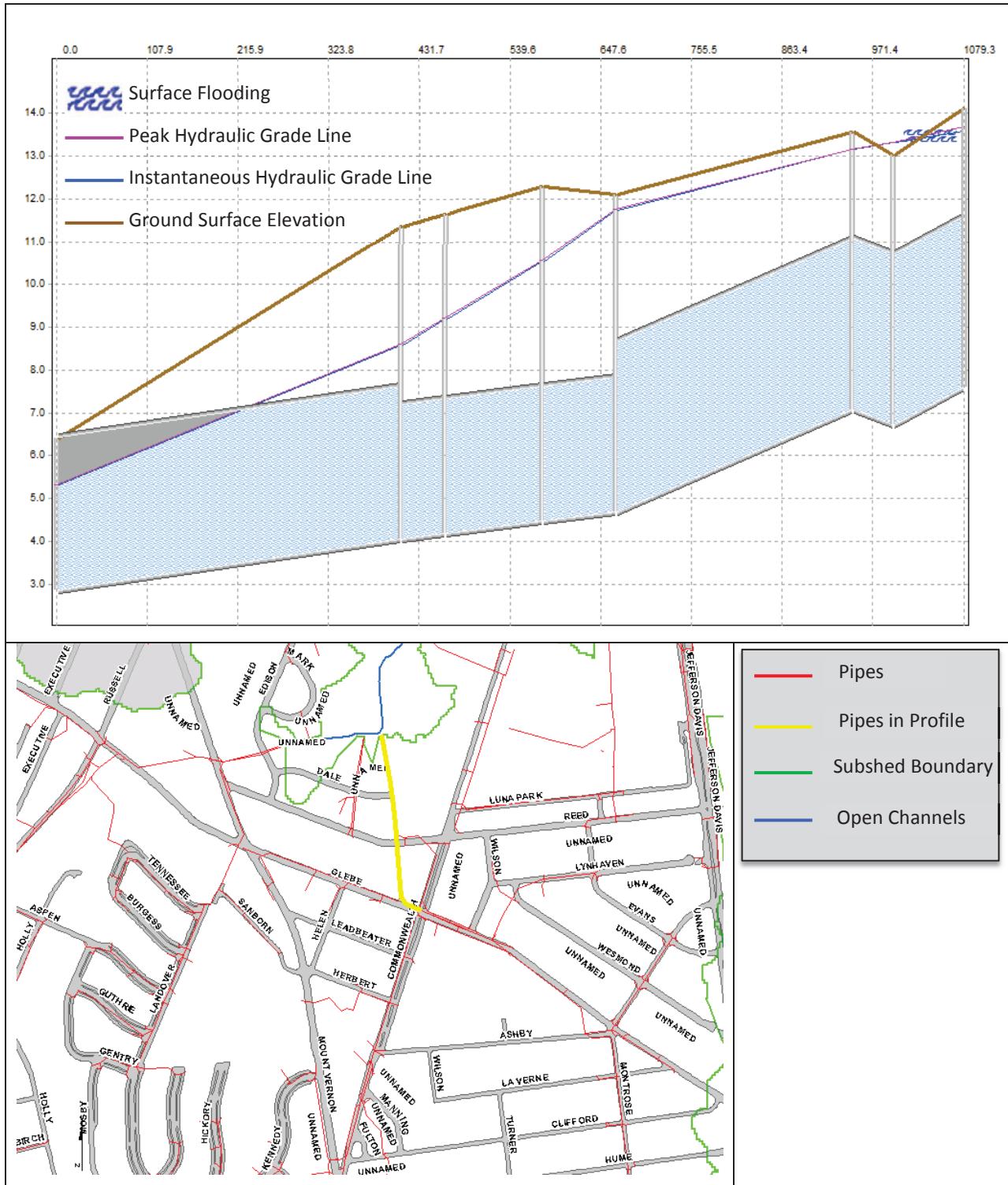
FIGURE 57

Profile 57 from 006333IN to 002749SMH (Existing IDF, Existing Boundary Condition)



**FIGURE 58**

## Profile 58 from 002749SMH to 000429IO (Existing IDF, Existing Boundary Condition)



**FIGURE 59**

Profile 59 from 008716IN to 000429IO (Existing IDF, Existing Boundary Condition)

